



STRESS APPRAISAL AT WORK:
ITS MEASUREMENT AND
IMPLICATIONS FOR WELL-BEING

TESIS DOCTORAL

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CHAPTER I. INTRODUCTION

Introduction to stress.....	1
Transactional approach to stress.....	6
Further developments of stress models in I/O psychology.....	9
Stress appraisal measurement.....	13
Stress appraisal outcomes.....	19
Culture and stress appraisal.....	21
Stress appraisal as a collective phenomenon.....	31
Research objectives.....	42
Conceptual model of the thesis.....	45

CHAPTER II. ARTICLES

ARTICLE 1.

Pot ser positiu, l'estrès? Recerca de la proporció òptima: entre la percepció positiva i negativa de l'estrès.....	47
---	-----------

ARTICLE 2.

Development and Validation of the Valencia Eustress-Distress Appraisal Scale.....	55
--	-----------

ARTICLE 3.

How to construct more effective questionnaires: Applying Rasch to the VEDAS data.....	97
--	-----------

ARTICLE 4.

Cross-national model of stress appraisal-outcomes.....	143
--	------------

ARTICLE 5.

Patterns of Eustress and Distress Climates in Teams: Their Profile and Outcomes.....	181
---	------------

CHAPTER III. GENERAL DISCUSSION AND CONCLUSIONS

General discussion	235
Theoretical implications	240
Practical implications	243
Final conclusions	245

CHAPTER IV. RESUMEN GLOBAL

Objetivos	247
Metodología	249
Diseño de los estudios	249
Muestra	250
Procedimiento	252
Variables utilizadas y su operacionalización.	253
Análisis	256
Conclusiones	257

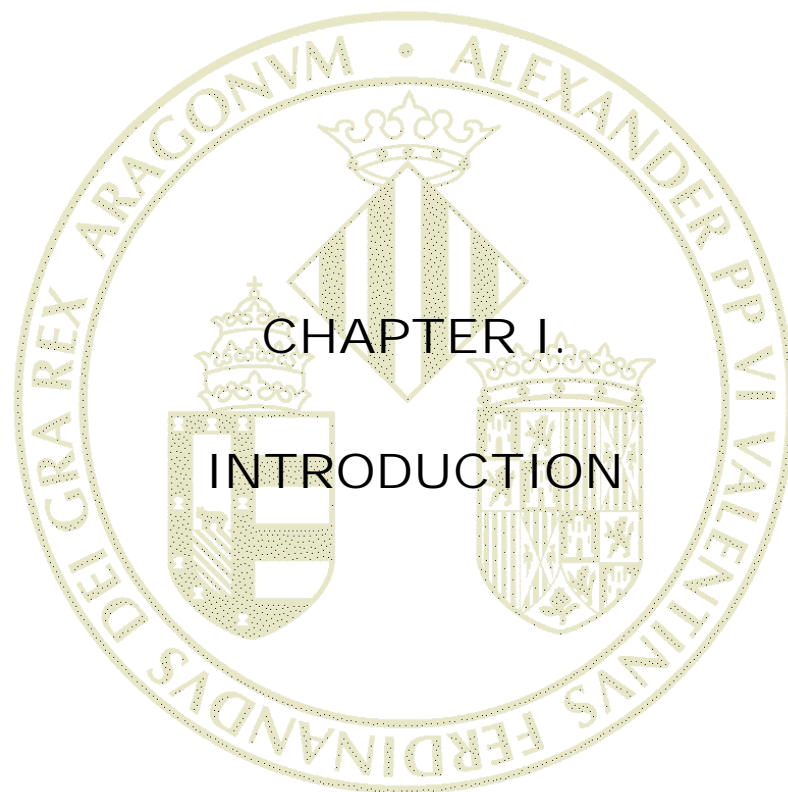
REFERENCES	263
-------------------------	------------

APPENDIX I.

Instruments	285
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APPENDIX II.

¿Puede el estrés ser positivo? Buscando la proporción óptima entre la percepción positiva y negativa del estrés.	289
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CHAPTER I.

INTRODUCTION

Occupational stress in organizations has often damaging effects on employees' health, deteriorates companies' performance and involves additional costs. This is a reason for a recently growing interest in identifying the sources of stress in order to confront the problem and implement preventive measures. However, the analysis of stressors per se is not sufficient, because an important link in the stressors-strain relationship is actually the way individuals appraise them (Lazarus & Folkman, 1984). Nevertheless, job stressors have often been assessed through individual reports, showing the general level of stress of an employee and workers' appraisals have hardly been explicitly considered. In the present thesis, we are first going to address the importance of stress appraisal and we will concentrate on the transactional approach to stress. First, we will identify the gap in the currently available tools to measure stress appraisal and we will emphasize the necessity of constructing a new measure, by relying on the classical and modern approaches to measurement. Considering stress as a social phenomenon, we will focus on stress appraisal-outcomes relationship and contemplate the role of culture in it. In addition, we will consider the collective perspective to stress appraisal and the possible outcomes of shared stress appraisal for individual well-being. All these issues will yield the conceptual model of the thesis which will be depicted at the end of the introduction part.

Introduction to Stress

The word stress comes from a Latin word "stringere" which means to provoke tension (Skeat, 1882). In Hebrew the word stress is translated into either "pressure" or "tension" (Glazer, 2002) and, interestingly, in Chinese the word "stress" is represented

by two characters that symbolize the words 'crisis' and 'opportunity' (Hashim & Zhiliang, 2003).

Stress "*must have occurred even to prehistoric man that the loss of vigor and feeling of exhaustion that overcame him after hard labor, prolonged exposure to cold or heat, loss of blood, agonizing fear, or any kind of disease had something in common. He may not be conscious of his response to anything that was just too much for him, but when the feeling came he must have realized that he had exceeded the limits of what he could reasonably handle*" (Selye, 1973, p. 693).

The term "stress" appeared for one of the first times in a technical domain in the 14th century (Lumsden, 1981) and then in the physical-biological domain in the 17th century with a remarkable work of Robert Hooke (see Hinkle, 1973). Hooke defined *load* as a weight put on an object, *stress* as the area of the impact of the load, and *strain* as the deformation of the object produced by the interaction of both load and stress (Lazarus, 1993).

Although the usage proposed by Hooke was not made systematic until the early 19th century (Lazarus & Folkman, 1984), Hooke's study had a great impact on early 20th century studies of stress. Even though the definitions of the concepts were somewhat modified, the main idea of stress as an external demand on a system persisted (Lazarus, 1993).

Early in the study of stress, this phenomenon was treated from both psychological and physiological perspectives. These two approaches were unified under the concept of homeostasis and stress was first considered a deviation from some norm of steady state under such conditions as cold, lack of oxygen or low blood sugar (Cannon, 1939).

Parallel to Hooke's studies, stress started to be examined from the input – output approach where input refers to loads or demands placed, whereas output represents strain, deformation or breakdown of the body. This model was adopted by behaviorist and positivist psychologists in order to make scientific foundations to the phenomenon of stress (Lazarus, 1993).

During the World War I, the perspective to breakdown or dysfunction was more neurological than psychological, considering these problems the effects of brain damage due to the exposure to the sound of exploding shells (Lazarus, 1993). However, during World War II, we observed a shift to a psychological perspective to stress as the topic of psychological stress started to be popular due to many people being exposed to the “stresses” of combat (e.g. Grinker & Spiegel, 1945). These stressors, previously understood only as such features as exposure to sounds, have now extended their meaning to include such psychological factors as harm, loss or threat of a loss. It was an important shift to consider emotional breakdown as a result of psychological processes (Lazarus, 1993). Military forces were interested in stress research as they looked for recruiting soldiers highly resistant to stress that would function well in demanding situations. Hard as they tried, it was not an easy task for psychologists to predict which persons are stress-resistant and to explain the whole process of stress. Some persons turned out to react with great amounts of stress to given conditions, whereas for others stress provoked by the same conditions was minor. In the same vein, some persons performed better under stress, while other's performance decreased or remained the same (Lazarus & Eriksen, 1952; Lazarus, 1993). To address this issue, Lazarus and Eriksen (1952) proposed that the stressor-strain relationship depends on individual differences in motivation and cognition. This approach was following the rationale of a

newly proposed stimulus-organism-response (S-O-R) model that was one of the foundations of what was called cognitive revolution in the U.S. (Lazarus, 1993).

Wolff's (e.g. 1953) and Selye's (e.g. 1956) works on stress were important for the further conceptualization of stress. The former treated stress as a "dynamic state" (Lazarus & Folkman, 1984) and the latter as a non-specific physiological response of the body. These two perspectives were very important because they made a shift from an idea of a passive body strained by external loads (as used in physical sciences) to an active process of the organism of "fighting back" and adapting to restore the equilibrium (Lazarus & Folkman, 1984). Also, Selye's and Wolff's works made possible to analyze the relationship between the individual and the environment, as well as the dynamic processes such as employing resources available for coping, their costs and benefits like growth of competence and the joy of overcoming the adversities (Lazarus & Folkman, 1984).

In 1952, Hans Selye, considered the "father of the concept of stress" (Ivancevich & Matteson, 1984), brought the attention of the psychologists to the overlaps between physiological and psychological stress (Lazarus, 1993). He proposed the General Adaptation Syndrome (GAS), explaining that any threatful agent (stressor) would lead to a similar physiological defense (stress reaction), which can be considered a physiological equivalent of coping (Lazarus, 1993). In other words, according to Selye (1973), the stress-producing factors (stressors) are different, but they produce essentially the same biologic stress response. In addition to physiological stressors, psychological stressors were also considered to provoke GAS. However, it is important to underline that the causes of physiological stress (i.e. what harms the tissues) is not equal to what is stressful psychologically (Lazarus, 1993).

At this point of the development of the study of stress, Janis (1958) published his work aiming at systemizing the growing stress theory and methodology. His publication contributed to the popularization of the term stress and it was followed by a surge of interest in the social sources of stress (Lazarus & Folkman, 1984). During the last half century, when the interest in the study of stress has been growing, it has been progressively including a greater diversity of topics, such as natural disaster (e.g. Baker & Chapman, 1962), group stress effects of working and living under water (Radloff & Helmreich, 1968), coal mine disaster (Lucas, 1969), students facing examination stress (Mechanic, 1978), Post-traumatic Stress Disorder (American Psychiatric Association. Task Force on Nomenclature and Statistics, 1980), and studies of organizational stress (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Eventually, the growing theory and the diversity in approaches to stress have led to confusion in the terminology.

“When the word stress came into vogue, each investigator, who had been working with a concept he felt was closely related, substituted the word stress ... and continued in his same line of investigation” (Cofer & Appley, 1964, p.449).

Given that complexity, we should therefore clarify the concept of stress, before continuing with our studies. In medicine, *stress* means psychological *and* physiological reactions to deleterious factors; Sociologists understand stress as the disturbing factor and strain as the collective reaction (e.g. riots, panics and other social disruptions) (Lazarus, 1993; Lazarus & Folkman, 1984). In turn in psychology, some authors understand stress as a stimulus (Appley & Trumbull, 1967), others as a response (Selye, 1976), and still others as a transactional process between a person and the environment that overwhelms one’s resources, puts one’s well-being or health in danger, and is

appraised as threatening (Beehr, 1995; Lazarus & Folkman, 1984; Peiró & Lira, 2013; Rodríguez, 1998).

When considered a *stimulus*, stress refers to the external forces that entail temporary or permanent consequences on the individual, or it makes reference to new, quickly and unexpectedly changing intense encounters (Appley & Trumbull, 1967). If considered a *response*, stress refers to physiological or psychological responses that occur when facing environmental stimuli (stressors) or an external threat (Selye, 1976). In this line, it can be defined as an adaptative response to any action, situation or event that places demands on a person, moderated by individual differences (Matteson & Ivancevich, 1987). Also, stress as a response can be defined as an unpleasant feeling related to the moment when a person sees themselves moving away from their ordinary patterns of functioning (Summers, DeCotiis, & DeNisi, 1995). Finally, from the transactional perspective, the term stress makes reference to the *process* during which some characteristics of the situation are regarded as significant for well-being (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). The transactional approach is the broadest perspective recognized in the field of stress and it is adopted in the present thesis. For that reason, we are going to describe this approach more in detail in the next section.

Transactional Approach to Stress

According to the transactional approach to stress (Lazarus & Folkman, 1984), the appraisal of a situation is essential to the stress experience (Peiró, 2001; Peiró, 2013; Sutherland & Cooper, 1988) and the nature of any particular stressor depends on how the individual interprets it and chooses to react to it (Peiró, 2008). “Cognitive appraisal

can be most readily understood as the process of categorizing an encounter, and its various facets, with respect to its significance for well-being” (Lazarus & Folkman, 1984, p. 31).

Lazarus and Folkman (1984) make a basic distinction between two concurrent appraisals: primary appraisal and secondary appraisal. However, the authors recognize that the choice of terminology “primary” and “secondary” is unfortunate as it may erroneously suggest that primary appraisal is of greater importance and that it precedes secondary appraisal in time.

During the primary appraisal, an encounter is categorized with respect to the person’s well-being as (a) irrelevant; (b) benign-positive; and (c) stressful. This categorization of what is at stake is affected by the persons’ commitments expressing what is important to them. Irrelevant or benign-positive demands do not initiate the stress process, as there is no potential threat to overcome (Lazarus, 1999). Thus, stress process is initiated by the encounters that are stressful (stressors). In turn, these stress appraisals consist of appraisals of harm/loss, threat (distress), and challenge (eustress) (Lazarus, 1966, 1993; Lazarus & Folkman, 1984); *Harm* is defined as a psychological damage that had already been done (Lazarus, 1966), *threat* is understood as the anticipation of harm that a person can suffer, and *challenge* appraisal is focused on a potential gain or growth and is accompanied with eagerness, excitement, and exhilaration as well as confidence that we can overcome a demanding situation thanks to our coping resources. Moreover, the appraisals of threat and challenge are not necessarily mutually exclusive (Lazarus & Folkman, 1984), and the existing evidence shows that they may coexist and occur simultaneously to the same stressor, but with different degrees of intensity (Folkman, 1997; McGowan, Gardner, & Fletcher, 2006).

During the concurrent secondary appraisal, a complex evaluative process of what can be done about the demanding situation takes place where available coping options and the likelihood that particular strategy will be effective are analyzed (Lazarus & Folkman, 1984). Primary and secondary appraisals interact with each other and determine the degree of stress, the strength and content of the emotional reaction (Lazarus & Folkman, 1984). Secondary appraisal is influenced by beliefs one has about the control over oneself, over one's emotions, and over environmental circumstances. These beliefs are related to feelings of confidence and mastery over the environment and include generalized ways of thinking as well as situation-specific expectations. The general beliefs about control have been accurately expressed by Rotter's (1966) notion of internal versus external locus of control (LOC) that makes reference to the persons' beliefs about the extent to which a situation is contingent upon their actions (internal LOC) or upon luck, chance, fate, or powerful others (external LOC). In the same line, Antonovsky's (1979) sense of coherence is a kind of general belief about control that refers to a "pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as can reasonably be expected" (p. 123). In turn, situational control appraisals, that also take place in the secondary appraisal, are individuals' beliefs about the degree to which one can influence a specific person-environment relationship.

In line with Selye's (1956) differentiation between the "bad stress" and the "good stress", the transactional approach to stress allows studying stress process from both perspectives: from the traditional one, as distress, and from a more positive perspective, as eustress. *Distress*, the "bad stress", is associated with negative feelings and disturbed bodily states (Selye, 1974). In contrast, *eustress*, the "good stress", is

connected to positive feelings and healthy bodily states (Selye, 1974). According to the transactional approach, whether a person will appraise a stressor as a source of eustress or distress, depends on (a) the causal person-environment relationship and relational meaning; (b) an evaluation whether the stressor is harmful or benign (primary appraisal) as well as expectations; and (c) the resources to deal with and to control stressful demands (secondary appraisal). Challenge (eustress) appraisals will tend to occur when what has to be done requires a considerable effort and when the individuals feel they have control over the disturbed person-environment relationship (Lazarus & Folkman, 1984). In contrast, if individuals have a high stake in the outcome, but feel helpless to deal with a demanding situation because the appraised harm/loss cannot be overcome or prevented, such experience can be devastating as they will appraise great deal of distress (Lazarus & Folkman, 1984).

The transactional approach to stress has been developed from a more general perspective and concerns more common day-by day stressful events. In turn, there have been attempts to incorporate a similar approach to the field of industrial psychology by elaborating two models to understand the process of stress: the Demands-Control(-Support) model (Johnson & Hall, 1988; Karasek, 1979) and the Demands-Resources model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Below, we are going to address those two models more in detail.

Further Developments of Stress Models in I/O Psychology

The first of the two most remarkable models to understand the process of stress in the field of industrial psychology, the Job Demand-Control (JD-C) model (Karasek, 1979) focuses on two crucial job aspects in the work environment: job demands and job

control (Karasek, 1979). Job demands refer to the work overload, and are generally understood as time pressure and role conflict (Karasek, 1985). Job control is sometimes called decision latitude and makes reference to the individuals' ability to control their work activities (van der Doef & Maes, 1999). According to the JD-C model, increased psychological demands provoke physiological arousal that occurs in the body to meet the challenges. This energizing response makes it possible for the employee cope with the challenge. However, if the employee has low job control, their possibilities to respond will be constrained, the demands will exceed the control possibilities, the effects of the demands are sustained, and, in consequence, the energy produced will not be channeled into an optimal course of action (Dollard & Winefield, 1998). Furthermore, job demands may have a damaging consequence for individuals (e.g. job-related depression, anxiety, and burnout), especially when they lack job control (de Jonge & Kompier, 1997; Landsbergis, 1988).

In the 1980s, the JD-C model was expanded by adding a social dimension to the model (Johnson & Hall, 1988), resulting in the Job Demands-Control-Support (DCS) model, according to which, job demands, job control and social support from colleagues and supervisors in the workplace are essential features for the development of health problems (Van der Doef & Maes, 1999). According to this extended model, the lack of social support may suppress the moderating role of control in the relationship between job demands and stress reactions, which means that a stressful work environment cannot be described only as high in job demands and low in job control but also as deficient in social support (Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003). Simultaneously, it was pointed out that personal characteristics might play a role in the interaction between the job demands, control, and support (Parkes, 1991). Therefore, Karasek's model have been further expanded, by simultaneously including additional

fourth component referring to personal characteristics, such as the employees' locus of control (Parkes, 1991; Rodríguez, Bravo, Peiró, & Schaufeli, 2001).

The second model that aims at explaining the process of stress from the industrial psychology perspective, the Job Demands-Resources (JD-R) model (Demerouti, et al., 2001) identifies two broad categories of working conditions, which are job demands and job resources, and which are differentially related to specific outcomes (e.g. burnout). This model can be applied to different occupational settings, irrespective of the particular demands and resources involved (Bakker, et al., 2003). Job demands are physical, social, or organizational job characteristics that require prolonged physical or mental effort that entails physiological and psychological costs. Job resources are such physical, psychological, social, or organizational protecting factors that determine performance capacities of the individuals and help keeping them healthy, even after under high degrees of job demands. Resources make reference to such aspects as job control, potential for qualification, participation in decision making, and task variety, support from colleagues, family, and peer groups, as well as cognitive features and action patterns (Demerouti, et al., 2001). Resources may help in achieving work goals, decrease job demands at the associated physiological and psychological costs or encourage personal growth and development (Demerouti, et al., 2001). When job demands are high and when job resources are limited, the consequence of such interaction between job demands and job resources may be taxing for the person (Demerouti et al., 2001), may lead to energy depletion and undermine employee's motivation (Bakker, et al., 2003). As we can see, in some aspects the JD-R model bears some conceptual resemblance to Karasek's (1979) JD-C model (Bakker, et al., 2003).

As we can observe, all the models commented above suggest that under certain circumstances, the results of the interaction between the demands and resources can be

positive and none of them implies that the demands are inherently negative. These models assume that if a person has sufficient resources, even positive effects can be produced. However, these models do not explicitly address the role of the appraisal of these demands and the positive outcomes that we can obtain from their positive appraisal. In contrast, this appraisal has been considered by the positive psychology which is a valuable contribution to the study of stress.

The interest in the cognitive approach and positive psychology perspective in the study of work stress emphasizes the potential that the study of stress appraisal has in the advancement of our understanding of the process of stress. As Peiró points out (2008; 2009), during years, the study of work stress has been dominated by a negative approximation, underlying the negative side of stress and its negative consequences, whilst the complementary positive approach had hardly been studied. As a result, although Lazarus and Folkman (1984) argued that both positive and negative appraisals can occur simultaneously, the joint study of distress and eustress experiences is rather scarce and there are few empirical studies that have analyzed both types of appraisals of the same stressors and their positive and negative effects. We consider it an important issue to increase the researchers' awareness and to encourage them to incorporate the positive side of stress into their studies on stress. Simultaneously, we believe that the paucity of empirical studies that have analyzed distress and eustress appraisals of the same stressors may be in part due to the absence of proper measurement tools to adequately assess them. Therefore, we should also provide the researchers with an adequate tool to assess both stress appraisals.

Stress Appraisal Measurement

Even though eustress and distress have been conceptualized following the congruent Lazarus and Folkman's (1984), Demerouti's and cols. (2001) and Karasek's (1979) rationale, it led some researchers to understand these phenomena in a different way. First of all, according to some authors, stress is a synonym of strain and therefore only its negative side is studied. Other authors distinguish between eustress and distress but understand them in a different manner than it is conceptualized by the transactional approach; According to them, eustress means the result of appraising a situation as a challenge, and distress is conceptualized a result of a threat. Yet others researchers believe that there stressful situations can be classified into those particular situations that provoke distress and a different set that will elicit eustress, discarding that the same situation can be a source of both distress and eustress. As a consequence of these different ways of understanding of the phenomenon of stress, there have been developed several distinct methods to measure it. They will be briefly commented below.

There are several questionnaires that measure the *level* of stress, but not its appraisal, like the Copenhagen Psychosocial Questionnaire (COPSOQ) (Kristensen, Hannerz, Høgh, & Borg, 2005) or the HSE Indicator Tool (HSE) (2004). In the former the respondents are asked to assess the extent to which their psychosocial work environment seems stressful for them in some specific aspects. In the latter, the subjects are provided with some stressful situations at work and they have to rate whether they have experienced any of them in the last six months (for a review of the questionnaires that measure the level of stress see Tabanelli et al., 2008).

If it comes to methods that assess the *appraisal* of stress (understood as distress), there are scales that assess the appraisal of distress, i.e. *Job Stress Survey* (JSS) (Vagg &

Spielberger, 1999), *Occupational Stress Indicator* (OSI) (Cooper, Sloan, & Williams, 1988), *Pressure Management Indicator* (PMI) (Williams & Cooper, 1998), or, in the police environment, *Operational Police Stress Questionnaires* (PSQ-Op and PSQ-Org) (McCreary & Thompson, 2006). The JSS evaluates the perceived intensity (severity) of working circumstances that can have negative consequences for psychological well-being of the employees exposed to them. It provides a list of stressors and asks the respondents to rate how severe they perceive is for them on average each of these stressors. The OSI is a popular measure for diagnosis of stress, stress-related personality and outcome variables (Evers, Frese, & Cooper, 2000). One of its subscales, the “sources of pressure” subscale aims at measuring the appraisal of sources of stress, related to such categories as the managerial role, relationships with other people, career and achievement, organizational structure and climate, and home-work interface. The PMI questionnaire is a different questionnaire designed to measure the perception of pressure. The items pertaining to the “stressor scale” of the PMI initially belonged to the “Sources of Pressure” subscale of the OSI. They represent stressors related to pressure from workload, relationships, career development, managerial responsibility, personal responsibility, home demands, and daily hassles (Williams & Cooper, 1998) and require respondents to evaluate to what extent they evaluate them as sources of pressure. Finally, the PSQ-Op and PSQ-Org also measure the extent to which a person considers different aspects of policing to be stressful, however, in this case the stressors that are evaluated are worded specifically for and are unique to specific, higher-stress occupations (like for example, police) (McCreary & Thompson, 2006).

Some questionnaires incorporate a positive approach to stress and focus on measuring the level of eustress, like the scale to measure levels of eustress constructed by O’Sullivan (2011) or the Daily Hassles Scale developed by Kanner, Coyne,

Schaefer, & Lazarus (1981). However, they do not assess eustress *appraisal*. In the scale measuring levels of eustress constructed by O'Sullivan (2011) participants are asked about the frequency of experiencing a list of situations conceptualized as eustress, however, they are not directly asked to evaluate its appraisal. In the Daily Hassles Scale, respondents are asked to indicate in an inventory of hassles and uplifts those that happened to them in the past month and, afterwards, to evaluate how severe they were and how often each of the indicated uplifts has occurred in the past month. The items refer to hassles and uplifts in general and they do not limit to the work environment.

There are also other scales that provide the subjects with two different sets of items that supposedly represent situations that can constitute sources of threat or challenge at work and asks to rank their appraisal, i.e. *Stress Appraisal Measure*, (SAM) (Peacock & Wong, 1990) or the challenge- and hindrance-related self-reported stress measure constructed by Cavanaugh and cols. (2000). In the SAM, items were selected by the authors for six appraisal dimensions that include Threat, Challenge, Centrality, Controllable-by-self, Controllable-by-others, and Uncontrollable. The threat items are understood here as threatening situations where a person feels anxious and anticipates a negative outcome. In contrast, the challenge items represented the situations considered to have a positive impact, allow for becoming stronger, and elicit feelings of eager and being excited about outcome. Participants are instructed to account on their perceptions of the forthcoming final examination in the course and to respond to the items referring to different situations. The second questionnaire, the Challenge- and Hindrance-Related Self-Reported Stress Measure proposed by Cavanaugh and cols. (2000) assesses challenge- and hindrance-related self-reported stress, providing different sets of items that represent challenging and threatening situations and asking the participants to respond to how much stress each of the work-related situations was causing them.

“Challenge stressors are defined as work-related demands or circumstances that, although potentially stressful, have associated potential gains for individuals; hindrance stressors were defined as work-related demands or circumstances that tend to constrain or interfere with an individual's work achievement and that do not tend to be associated with potential gains for the individual” (Cavanaugh, Boswell, Roehling, & Boudreau, 2000, p. 68).

Finally, the *Index of Sources of Stress in Nursing students* (ISSN) (Gibbons, Dempster, & Moutray, 2009) evaluates the *simultaneous* appraisal of distress and eustress using the same statements representing the possible sources of both “hassles” and “uplifts” and asks respondents to evaluate these sources of stress twice – once, to what extent the statement represents a source of distress or hassle, and once – a source of eustress or uplift. The ISSN refers to the situations that take place exclusively in the environment of nursing students.

Given that we understand eustress and distress appraisal according to the transactional approach (Lazarus & Folkman, 1984), we assume that they appear when a person appraises that their abilities are or are not sufficient to face the challenging/threatening situation. Also, we underline that the same situation can be both a source of eustress and of distress. However, to date, there are no such measures that would focus on these stress-appraisal features in different occupations. The existing measures face at least one of the following problems: (a) they do not evaluate the simultaneous appraisal of distress and eustress of the same stressful situation; or (b) the items possess too specific wording and cannot be used in different occupations. These limitations in the measurement provoke a necessity to construct a new measure of eustress and distress appraisal that would provide a set of statements representing demanding situations that could be appraised both as distress and eustress, and that

could be used in different occupations. Therefore, one of the aims of the present work is to construct a scale that would deal with these problems.

At the same time, the tests are predominantly developed and validated using the Classic Test Theory (CTT) Approach, which is widely used in test development in psychology. CTT has served as a basis for measurement theory for over 80 years and it allowed creating some outstanding psychometrically sound scales (Kline, 2005). It appeared and developed in the early 20th century as a result of three remarkable achievements of the previous 150 years: detection of the existence of errors in measurement, the idea that errors are random variables, and the concept of correlation and showing how to calculate it (Traub, 1997). Also, CTT has some other important contributions such as the reliability coefficient, and factor analysis. Currently, CTT is the most frequently applied theory in constructing and validating tests. It does few assumptions that make it flexible and applicable virtually to the 100% of cases.

Despite its contributions, there are some characteristics of the CTT that undermine its validity as an only method for test construction and development. CTT obtains the total score by summing up the answers to all the items in the scale, irrespective of the ordinal nature of these answers (items' difficulty), without calibrating the items, that is, considering them to be equivalent. Given that it does not offer us a true-interval scale and treats ordinal-level data as equal interval, it violates requirements of parametric tests which may have a profound impact on the results of some analyses (such as t-test). Also, in the CTT, the decision for the adequate number of response categories in a test often depends on solely theoretical reasoning. Finally, the scores obtained in the test are always sample-dependent. The popularity and the advantages of simplicity and flexibility of the CTT do not mean that we cannot search for alternatives, or for complementary approaches that are in fact already widely in use by other areas

(e.g. medicine and education) and that offer solutions to the problems mentioned, such as the modern Rasch Analysis (RA) (Rasch, 1960) which has been recently emphasized to be a new and advantageous solution.

RA allows for a much more rigorous assessment of individuals than the common CTT-based tests. In the RA, the response patterns achieved from a set of items are tested against what is expected by the model. Provided the model fits, the use of RA conveys various benefits to evaluate instruments, as it: (1) discovers the hierarchy of the items; (2) calibrates the items; (3) gives independent error estimates for each item; (4) shows whether there are any gaps in the items' continuum and can spot those items that are redundant; (5) converts the raw scores into a true interval scale; (6) offers a possibility of contrasting empirically if the response category set is working appropriately for the test and what is the adequate number of response categories; and (7) provides us with the parameter estimations that are invariant, thus, can be generalized from one sample to another. It seems therefore that, in addition to the CTT approach, the analysis of a new scale to measure eustress and distress appraisal using the modern RA would add valuable extra information about the content of the questionnaire that the CTT cannot offer.

Therefore, our **first research objective** is: *To construct a measure of stress that would conceptualize the appraisal of distress and eustress and where the same situations can be sources of both distress and eustress, adequate to use in different professions.*

This general research objective is unfolding into two specific research objectives: (a) *To construct a valid and reliable measure of eustress and distress from the CTT perspective; and (b) To apply to this test the Rasch Analysis to obtain additional information about the construct of stress and about this scale that offers RA.*

The construction of a new scale that allows for a simultaneous evaluation of eustress and distress appraisals would permit studying its consequences, as they depend strongly on the positive and/or negative appraisal of stressors that is made (Lazarus & Folkman, 1984). A more comprehensive consideration of the possible outcomes of stress appraisal is offered in the following section.

Stress Appraisal Outcomes

As it has been already emphasized, although some authors have mentioned a positive side of stress at work, until recently the accent has mainly been placed on its negative side (Peiró, 2008) and the positive outcomes of stress have not been thoroughly investigated. In the majority of studies, attention is paid mostly to the negative outcomes of stressful experiences such as poor well-being (Jamal, 1999), increased negative affect, work dissatisfaction, or burnout (Cavanaugh et al., 2000), to name just a few. These studies are accompanied by alarming European statistics that show that over a half of all lost working days are stress-related (Cox, Griffiths, & Rial-Gonzalez, 2000), supposing enormous costs in terms of both employees' impaired health and organizations' reduced economic performance.

Although Lazarus (1993) already brought up that threat may deteriorate human performance and impede mental processes, whereas challenge may be associated with outstanding functioning (Lazarus, 1993), it was only until recently that some researchers have shown a growing interest in more positive aspects of stress and in deriving benefits from stressful events at work (Podsakoff, LePine, & LePine, 2007) depending on the association made (Boswell, Olson-Buchanan, & LePine, 2004; Cavanaugh et al., 2000).

In the labor context, some demanding situations were found to be invigorating, stimulating and produce a feeling of growth for the individuals as they are developing abilities and are making new achievements (Quick, Nelson, & Quick, 1990). The appraisal of stressors plays a key role in producing the outcomes of stress. Particularly, the appraisal of distress can induce such negative effects as burnout, decreased satisfaction, depression, etc., whereas positive stress experiences might trigger such beneficial consequences as well-being, work satisfaction, organizational commitment (Scheck, Kinicki, & Davy, 1997) and engagement (Cavanaugh et al., 2000). Also, individuals who experience eustress were more engaged, energetic and enthusiastic, as well as convinced that the work makes sense emotionally, that it is worth investing effort in, and that they will succeed (McGowan et al., 2006).

By the same token, we aim in this thesis at equilibrating the dominant negative perspective to stress outcomes with the complementary positive approach and we take into consideration both the potential negative and positive outcomes for employees' well-being. However, the whole process of occupational stress is deeply immersed in societal contexts (Glazer, 2008). Therefore, when studying the outcomes of stress appraisal, we cannot overlook its significance. It draws our attention to the possible influence of such groups as national cultures and it suggests that stress appraisal-outcomes relationship should be studied from a cross-cultural perspective. The following section is dedicated to explain more in detail the importance of culture in the process of stress and the impact it may have on the outcomes of stress appraisal.

Culture and Stress Appraisal

In a global world facing global opportunities as well as global threats, understanding cultural differences has become essential (Gelfand, Erez, & Aycan, 2007). Disappearing borders of the European Union and the increase of the mobility of the workers make necessary cross-cultural studies of stress to explore how stress process works in different countries in order to establish the best way to cope with it, and to ensure employees' health and organizational success.

As opposed to the position of universalism that assumes that, “the same psychological processes are operating in all humans independent of culture” (Poortinga, 1992, p. 13), the cross-cultural perspective emphasizes that people are tied to numerous cultures (Erez & Gati, 2004) and by interacting and identifying with them they are under its constant influence (Glazer, 2008). In this way, people learn the “shared interpretation rules” (Averill, 1986) to interpret facts and events, as well as their relations and causes. Cultural constraints limit and shape the behavioral expression of the universal processes, the weight accorded to different dimension of appraisals being different across cultures (Bond & Smith, 1996).

In order to build a more comprehensive global science of stress, cross-cultural research is necessary. “In no other way can we be certain that what we believe to be...regularities are not merely peculiarities, the product of some limited set of historical or cultural or political circumstances” (Kohn, 1987, p. 713).

“What appear to be cross-national differences may really be instances of lawful regularities, if thought of in terms of some larger, more encompassing interpretation” (Kohn, 1987, p. 716).

Culture as a field for investigation was already recognized in psychology in 1888 by Wundt who published *Völkerpsychologie*, which marked the beginning of a strong tradition in research (Jahoda, 1990). However, the Psychology of twentieth century did not show a great interest in intra- as well as inter-cultural differences and observation under experimental artificial conditions was the most accepted orientation towards studying human behaviour (Misra & Gergen, 1993) and in these experiments the researchers were striving to find the same generalizable and replicable mechanisms that could exist virtually everywhere. Psychology, with a special emphasis on Social Psychology, was a product imported in the XX to a great extent from the United States (designed for the American market), with an assumption that it can be consumed anywhere in the world, “similarly as a hamburger from McDonald’s” (Boski, 2009, p. 13). In consequence, culturally-decontextualized science of behaviour was dominating and human being was understood as reactive in nature, ahistorical, and decontextualized from the specific historical circumstances. In contrast, the role of socio-cultural context was marginalized (Misra & Gergen, 1993) and, if taken into consideration - which was unusual - culture was typically considered a source of error, a variable that had to be controlled or, sometimes, it was converted into an independent variable: a social stimulus or a personality disposition (Misra & Gergen, 1993).

Boski (2009) explains that the roots of the common tendency to generalize in a mechanic way the results obtained in one country to the whole population on the Earth could stem from a consciously chosen epistemology as well as from hidden assumptions, that have not been subject to a thorough reflection, such as: (a) Naturalistic fundamentalism, according to which there are no differences among people in their functioning of the central nervous system and in the other human biological systems; (b) Pragmatism, postulating that American psychology serves well any country

without questioning the extent to which these generalizations are authorized; and (c) Culture blindness which means that many cultural assumptions and solutions are accepted by ordinary people and by psychologists without reflection as obvious, which makes difficult the cultural deconstruction of these assumptions and looking at them with a cross-cultural perspective (Boski, 2009). This leads us to a classical polemic of distinguishing natural sciences and socio-humanistic sciences that concerns psychology more than any other academic discipline. This division, so to say, halves us and the identity dilemma “where do we belong?” is marked strongly in psychology. The choice that is made by cross-cultural psychologists is clear: it is the social and cultural environment that influences our behavior (Boski, 2009). The awareness of the existence of this duality broadened the perspective to psychological science.

Every science begins from the problems that are brought by our presence in physical, biological or social world and from the astonishment that provokes us to search for responses to these problems: to cope better with them in real-life practice or to understand better and to feed the cognitive curiosity. The genesis of cross-cultural psychology consisted of the intensifying contact between people across nations due to globalization process (Boski, 2009). The emergence of the specialization of cross-cultural psychology provided an impulse to concentrate on culture as the object for psychological research. It also served to verify the claims to universality by replicating the findings across cultures. A clear distinction was made between “etic” or universal dimensions and “emic” or culturally specific dimensions (Harris, 1980) and the main focus of cross-cultural psychology was *the study of behavior and experience as it occurs in different cultures, is influenced by culture or results in changes in existing cultures*” (Triandis, 1980, p. 1).

The complexity of culture is reflected in the abundance of its definitions (Krewer & Jahoda, 1993; Misra & Gergen, 1993). They were already over 164 different definitions for culture collected up until 1951, each one claiming a profound understanding of culture (Olie, 1995). For example, culture is understood as a shared phenomenon that is transmitted in time from generation to generation (Triandis, 1994), constituted by a set of beliefs, attitudes, values and practices shared by a group of individuals that have common history and are a part of one specific social structure (Molero, 2002). For Hofstede (1991), culture is a collective mental programming that distinguishes the members of one group or category of people from the other. Schein (1990) defines culture as a pattern of basic assumptions shared by the group members developed in the process of learning how to cope with the problem of external adaptation and internal integration into three levels: artifacts, espoused values and basic underlying assumptions. Culture is also believed to encompass basic norms of behavior, values and assumptions that gained meaning in the interaction process and which influence behavior, not being behavior themselves (Bjerke, 2004, p. 28). It can be described as unconscious values which are obvious for members of a group and are the components of the culture that are the most difficult to observe and study. Schwartz (1999) defines these values as “conceptions of the desirable that guide the way social actors (e.g. organizational leaders, policy-makers, individual persons) select actions, evaluate people and events, and explain their actions and evaluations”. Cultural values represent the implicitly or explicitly shared abstract ideas about what is good, right, and desirable in a society and are the bases for the specific norms that tell people what is appropriate in various situations (p. 24-25). Although they are numerous, what all these definitions have in common is that they all treat culture as a phenomenon of social origin, which is passed on in time, and is difficult to change.

The origin of the cross-cultural studies in psychology began with the milestone work of Geert Hofstede (1980). However, before his work, we should point out the work of Bartels (1967) who explored the concept of decision-making and business ethics and reported the importance of culture and the cultural differences in law, respect for individuality, nature of power, authority, values and customs, among others (Jones, 2007). After that, in the years 1968-1972, Hofstede carried out his famous research in 50 countries in the IBM organizations focused on values at work. In 2001, he complemented his work with 16 additional countries, predominantly from a post-communist regime (Boski, 2009). On the basis of the analyses run on the responses of 116 000 IBM employees, Hofstede (1991) maintains that the form in which the habitants of every country think, feel and act in respect to the important, vital matters to survive in their lives is structured and varies around the following dimensions: (1) individualism-collectivism, (2) masculinity-femininity, (3) power distance, and (4) uncertainty avoidance. Later research caused the addition of a fifth dimension, long-term orientation (Hofstede & Bond, 1988). These dimensions describe the basic problems that the whole society has to face up. Individualism versus collectivism reflects the degree to which people define themselves by the group or organization to which they belong. Among others, individualism is associated with independence, autonomy, self-reliance and uniqueness. In contrast, collectivism relates to a sense of duty toward one's group, interdependence with others, a desire for social harmony and conformity with group norms (Green, Deschamps, & Paez, 2005). Masculinity versus its opposite, femininity, refers to assertive, performing and competitive values versus modesty, caring respect for quality of life and personal relationships. Power distance describes a society's response to inequality in power among its members (Hofstede, 2001). The fourth dimension is connected to the level of acceptance of uncertainty and

change as well as readiness for spontaneous activity and risk taking even though the formal procedures are missing. Finally, the long-term orientation represents the cultural perspective on a long-term vs. a short-term basis. The work of Hofstede received a status of a classic in cross-cultural psychology manuals (Boski, 2009). It was considered *"undoubtedly, the most significant cross-cultural study of work-related values"* (Bhagat & McQuaid, 1982, p. 663).

Later on, similarly to Hofstede's research, another project rooted in the psychology of organizations and management was developed with the aim of investigating the dimensions of culture. It was denominated the GLOBE project, developed in the years 1991-2004 by House and his colleagues (House et al., 2004). The collaborators of this international project were luckier than Hofstede because at the end of the last century when they carried out their project there were no more political barriers as it was in the communist countries where Hofstede strived to collect his data (Boski, 2009). Thanks to that, the GLOBE project was carried out in 62 countries covering all the regions of the world that then were placed over the GLOBE nine "double" dimensions: (1) assertiveness; (2) uncertainty avoidance; (3) power distance; (4) institutional collectivism; (5) in-group collectivism; (6) gender egalitarianism; (7) future orientation; (8) performance orientation; and (9) humane orientation. Each of these "double" dimensions has two facets: The first includes prevalent practices and personality traits in the societies; whereas the second reflects what the respondents considered desired values and their concepts of an ideal society.

Another project that was developed in the framework of organizational psychology in multinational organizations was the work of Trompenaars that provided data from 43 countries. His research yielded a classification of seven cultural dilemmas: (1) universalism-particularism, (2) individualism-collectivism, (3) specific-diffuse, (4)

affective-neutral, (5) achievement-ascription, (6) sequential-synchronic time, and (7) inner-outer directed. However, the empirical side of this project does not reach the theoretical potential and Trompenaars has been not included in the mainstream of cross-cultural psychology. What is more, some researchers from this domain, like Schwartz, even ignore it (Boski, 2009).

The project of Schwartz appeared twenty years after Hofstede's and at the same time as the GLOBE and Trompenaars' endeavors. The current databases are still growing and new analyses are carried out on them, therefore, we can treat it as an open work. Schwartz explores the issue of values and treats them from a slightly different approach than the researchers commented above, overcoming the barrier between science and metaphysics, and putting together philosophy with advanced data analysis (Boski, 2009). The value theory proposed by Schwartz and Bilsky (1987) maintains that human value system is composed of structured and prioritized elements mutually related and that can be categorized depending on their importance for an individual (Gelade, Dobson, & Auer, 2008). Schwartz considers that the structure of values has two levels: individual and cultural. This idea is new in comparison to the studies of Hofstede, GLOBE, Trompenaars, as they assumed that there was only one, cultural level of values. Therefore, at the individual level, Schwartz (1992) distinguished 10 value types and he embedded his taxonomy in three fundamental human needs, defined by three different sets of value types. The first need refers to the individual concern with such values as: (1) power, (2) achievement, (3) hedonism, (4) stimulation, and (5) self-direction. These values are contrasting with the need representing the collective interest including values on (6) benevolence, (7) tradition and (8) conformity. There is a third value cluster denominated as "mixed interest values" represented by the two remaining value types: (9) universalism and (10) tradition, located between the individual concern

and collective interest value clusters. The model also operates at the higher level of two bipolar dimensions which have been described as “Openness to change” vs. “Conservatism,” and “Self-enhancement” vs. “Self-transcendence”. At the cultural level, Schwartz distinguished 7 types of values spread along three polar dimensions: (1) hierarchy versus (2) egalitarianism; (3) mastery versus (4) harmony; and (5) conservatism versus (6) intellectual autonomy and (7) affective autonomy. Hierarchy refers to the legitimacy of an unequal distribution of power roles and resource. Egalitarian commitment means interests that serve the common good. Mastery refers to making progress and achieving success through self-assertion. Harmony represents a harmonious fit into the environment. Conservatism denotes the maintenance of the status quo and restraint of actions that could disrupt established order. Intellectual autonomy means independent ideas and liberty of an individual to follow his/her own intellectual directions. Finally, affective autonomy refers to the personal interest in searching for affectively positive experiences.

All in all, the most of the attempts to measure culture revealed cultural dimensions that result related and correlated empirically to the value dimensions of Hofstede (Bond et al., 2004) that we consider the most widely known value mapping. Hofstede’s research effort is considered the most prominent of its kind (Bond, 2002). His model has been also amply related to geographic and macro-economic variables (Hofstede, 1980). Although Hofstede’s research is not exempt of criticism, there have been carried out analyses of a dialogue between Hofstede and his antagonists and provided evidence for a greater argument in support of Hofstede (Jones, 2007). In the present thesis, the Hofstede’s framework will be used, considered a classic in cross-cultural psychology.

Cultural differences are certainly the roots of different values that one can give to work and therefore of the different perception of work that one has. The meaning of work is, in a great measure, a fruit of culture, ideology as well as legal, economic, social and organizational conditions that can vary in different countries and cultures (Peiró, 1993). Perception and cognition depend on the information that is sampled from the environment, which is in turn culturally influenced as cultures develop different conventions for sampling information, which makes the significance that individuals give to a particular event at work differ depending on culture (Triandis & Suh, 2002). That is why, from the cultural perspective, the differences across cultures may be found in the perception of stressors (Chiu & Kosinski, 1995; Spector, Cooper, Poelmans, Allen, O'Driscoll, Sanchez, Siu, Dewe, Hart & Lu, 2004).

However, we may ask to what extent the mechanisms of stress related to the stress appraisal – outcomes relationship will remain the same across cultures. Currently, we are unable to respond unequivocally to this question, basically due to the following problems. First, the data that we dispose of is not concluding. Some authors make tentative conclusions that stress is a culture-general process (Glazer & Beehr, 2002), whereas, in contrast, others suggest that employee stress-health outcome relationships are affected by a broader societal context. They suggest that work-health relationships are influenced by contextual factors such as a country's economic, social and cultural determinants (Bambra, Fox, & Scott-Samuel, 2005; Pisljar, van der Lippe, & den Dulk, 2011). Moreover, some researchers emphasize that the intensity of stress consequences and the strength of the relationships between the reported stressors and their outcomes may differ (Glazer & Beehr, 2002). We consider it reasonable to consider that cultural orientation and some cultural values may impact in some way the individual outcomes

of stress. However, we do not find sufficient evidence to discard cross-culturally universal patterns of the stress appraisal – outcomes relationship.

Second, the majority of cross-cultural studies have investigated and compared only the general level of stress (understood as distress) in different countries, and few studies have considered stressor appraisals (Glazer, 2008). Moreover, these studies have been concentrated on the negative consequences of stress, and therefore, we dispose of data about how countries differ in the level of the negative stress experience (Glazer, 2008) and we lack cross-cultural data on the positive appraisal of stress and on its positive consequences.

Finally, to date, work stress has mainly been studied in the US and Western Europe (Gelfand et al., 2007; Glazer, Stetz, & Izso, 2004; Nauta, Liu, & Li, 2010) and cross-national studies on stress across a wider range of cultures and societies – Western and non-Western countries – are needed to be able to give a valid description of the stress process and to provide knowledge that can help individuals navigate in the increasingly global context (Triandis & Suh, 2002). Particularly, the problem of occupational stress is relevant for countries that are undergoing enormous economic and social changes like, for instance, Central or Eastern Europe countries that may differ both in their location on cultural dimensions as well as in working conditions such as wages, job stability, and work schedules.

Glazer (2008) underlines that the transactional framework of Lazarus and Folkman (1984) offers the most comprehensive guide for studying stress from a cross-cultural perspective. Therefore, in the present thesis, we would like to apply the transactional approach to stress in order to study the outcomes of stress appraisal in one Western and one Central-European countries, which are characterized by some differences (e.g. the level of collectivism and of masculinity-femininity). Meanwhile, we

would like to examine whether the model of eustress/distress outcomes is invariant in these two European countries. Therefore, our **second research objective** is: *To construct a model of stress appraisal in which we could see how eustress and distress appraisal relates to burnout and work engagement.*

It unfolds into a specific research objective, which is: *To test the invariance of the model of stress appraisal across different cultures.*

Until now, we have made an ample comment on the possible impact of culture in the process of stress. The commented literature underlines the fact that stress process is immersed in the social context and that stressor appraisals can be influenced by social factors. It leads us to contemplate the role of yet other social groups in the process of stress, such as work teams. We believe there is a necessity for the study of stress process to consider the possibility of the appearance of some stress-related collective phenomena in work teams to be explored in multilevel studies. In fact, multilevel studies on job stress are considered to represent a new direction in occupational stress research (Cooper, 2000; Glazer et al., 2004). With this in mind, in the next section we will approach to stress appraisal as to a collective phenomenon that may be shared at the team level, giving place to stress climate and we will concentrate on the different consequences at the individual level it may entail.

Stress Appraisal as a Collective Phenomenon

In the new organizational setting, work teams have earned status of differentiation and constitute the basic unit of organization. The different types of groups and teams are its main cells and teamwork has become, in many cases, the basic

procedure for carrying out the work processes. Given the recent popularity of the use of work teams in the organizations, it has become necessary to understand group processes and the dynamics that take place in the life of the work teams. For this reason, the research on groups and teams has experienced a particularly strong growth over the last decade of the nineties that remains today.

The constant interaction of the team members with their physical and social setting gives place to the development of “*distinctive patterns of collective feeling and beliefs*” (Katz & Kahn, 1978, p. 50) on the basis of their cognitive appraisals (James & James, 1989) and the individual descriptions (Rousseau, 1988) of the context in which they are a part. These shared perceptions can give place to work climate (Rousseau, 1988).

The notion of organizational climate was compared by Guion (1973) to the wind chill index, as it involves the *subjective perception* of the joint effects of two *objective characteristics*: temperature and wind speed. Through this analogy, Guion (1973) suggested that organizational climate measurement should include both actual organizational conditions and the individual perceptions of these settings. Along these lines, organizational climate is defined as shared appraisal of the members of a work unit (Rousseau, 1988; Reicher & Schneider, 1990) of their work environment (Schneider, Ehrhart, & Macey, 2013) that includes policies, practices, procedures and behaviors observed at work (Ostroff, Kinicki, & Tamkins, 2003; Schneider & Reichers, 1983; Schneider, Ehrhart, & Macey, 2011) that get rewarded, supported, are expected in work setting and the meaning those imply for the setting’s members (Schneider & Reichers, 1983; Schneider, White, & Paul, 1998). Climate can be experienced by all individuals in an organization and it may exist at different descriptive levels (e.g. team) (Rousseau, 1988).

The study of climate in organizations has its roots in the late 30s of the XX century and has derived much heritage from research on perception, affect and attitudes. The construct of climate was initially developed on the basis of the Lewinian person-situation interaction. The conceptual issues that attracted thinking of organizational climate were, in the first place, the works of Lewin on the experimentally created social climates (Lewin, Lippitt, & White, 1939; Lewin, 1951) who studied the social climate in groups with a more democratic (participative) and autocratic leadership. They found the same level of productivity in both conditions; however they acknowledged more positive behaviors, attitudes and health outcomes to appear in the participative climate. On this basis, the authors considered social climate to be a combination of the behaviors and attitudes resulting from the leader's and each other's behavior. However, at that moment, the measurement of social climate was not systematized and was not assessed by any questionnaire or test (Schneider et al., 2011).

It was not before the 1960s and 1970s when the organizational climate become the most investigated topic in human organizational environment area. Argyris, McGregor and Likert were studying organizational effectiveness and were interested in understanding how individuals were treated by the organizations and what was their behavior as a response to the generic environmental practices and procedures, instead of asking how the employees personally felt about them (Schneider et al., 2011). Organizations were seen as total systems and they were focused on the total of the social encounter at work, experienced by the workers (Katz & Kahn, 1978). The emphasis of the early research was predominantly put on individual responses to survey questions on climate or to experimentally created situations and the focus was employee well-being and individual outcomes. There were also some variations in the number and focus of dimensions of climate. Predominantly, they emphasized the relationships with

other people at work and referred to leadership, coworkers, conflict, etc. (Schneider et al., 2011). Several researches appeared examining phenomena that nowadays would be considered research on different facets of organizational climate. For example, today we might call Argyris' (1957) research a study of "climate for infantilization", McGregors' (1960) – a study of "managerial climate" that determines employees' behavior, and Likert's (1967) – a typology of different levels of a "climate for productivity through employee participation". These works were oriented predominantly on the leadership perspective (Schneider et al., 2011) and were focused on aggregates and not on individuals (Schneider et al., 2013).

In the late 60s and early 70s the focus of organizational psychologists was organizational effectiveness, leadership, larger organizational systems, and the human issues encompassing them (Schneider et al., 2011). Climate was considered an "objective" set of organizational conditions, a subjective interpretation of individual and organizational features (Tagiuri & Litwin, 1968) or as encompassing both organizational conditions and individual reactions (Litwin & Stringer, 1968). Trying to define organizational setting, Litwin & Stringer (1968) proposed nine climate dimensions on which to evaluate the organizational environment: structure, responsibility, reward, risk, warmth, support, standards, conflict, and identity. However, as the research on the issues of climate was growing, the dilemmas surrounding whether climate is an individual experience and/or a unit/organizational attribute became evident (Schneider et al., 2011), and the researchers were struggling with these questions during the course of the 1970s (Schneider et al., 2013) when significant quantitative research on organizational climate was launched. There was no agreement on the definition of the concept of climate and there was almost no conceptual orientation to measure it.

Guion's (1973) important contribution was to emphasize an existing problem concerning the unit of theory in organizational climate research (Schneider et al., 2011).

The field [i.e., research on organizational climate] seemed to be getting weary of endless technical haggling about whether attitudes and perceptions of individuals could be aggregated to represent something at the organizational level, what metric should represent agreement, what criterion should be used to justify aggregation, which particulars are most important in the increasingly overwhelming morass of organizational behavior variables generating inconsistent, weak, contingent relationships and so on (Ashkanasy, Widerom, & Peterson, 2000, p. 4).

In their research, James and Jones (1974) strived to give a solution to the problem mentioned concerning the adequate level of analysis of the concept of climate. They suggested that the data should be collected at the individual level and aggregated in order to indicate the organizational climate. In this way, according to these authors, the unit of analysis was the individual versus the organization (Schneider et al., 2011).

The problems connected to the levels of analysis provoked a loss of audience of the subject of organizational climate in the early 80s and the topic of organizational culture eclipsed the attention of organizational psychologists. (Schneider et al., 2013). The concept of climate perceptions remained to be unclear as the researchers used a variety of terms to label individuals' perceptions of their work environment, such as psychological climate, collective climate, organizational climate, organizational culture) (Parker, Baltes, Young, Huff, & et al, 2003).

“[There is] the impression that climate studies have been boxed in by the appearance in the nest of this rather overnourished, noisy, and enigmatic

cuckoo called organizational culture. This pressure from an interloper may, however, be energizing climate researchers to rethink the role of climate studies” (Pettigrew, 1990, p. 416).

Some clarification was provided by Glick (1985) who explained that the organization or the subunit (and not the individual) should be the unit of theory for organizational climate research (Schneider et al., 2011); According to Glick (1985), the whole organization has an organizational climate that can be described as high or low irrespective of the level of within-organization individual-level agreement. Climate could be an individual-level phenomenon pertaining to the individual-level attitudinal research, as long as climate items did not refer to organizational functioning, the data was not aggregated to the organizational level, and the climate did not refer to vital organizational consequences (Glick, 1985). Schneider and Reichers (1983) also considered organizational climate a property of a unit and not a property of an individual and understood that individual responses about the organizational practices and functioning would normally have a significant level of consensus within an organization and could be aggregated to indicate the organizational climate.

In order to further clarify the confusion in the understanding of the construct of climate, Chan (1998) proposed a typology of composition models to guide researchers in organizing, evaluating and developing constructs and theories in multilevel research and to facilitate the communication between the researchers. He confirmed that it is possible that the phenomena or constructs that refer to the same content are analyzed at different levels of analysis (individual-, group-, and organizational level), however, at these different levels of analysis they would have qualitatively different meaning (Hannan, 1971; Roberts, Hulin, & Rousseau, 1978; Rousseau, 1985). Chan (1998) proposed five types of the basic forms of composition models can take: (a) additive, (b)

direct consensus, (c) referent-shift consensus, (d) dispersion, and (e) process composition. These models will be briefly commented below.

The Additive Model represents the Glick's conceptualization of organizational climate and consists of summing the lower level units regardless of the variance among them, to obtain the higher level unit. Therefore, the organizational climate is represented by the organizational summed or mean climate score and the variance of the lower level units is of no concern. This model is not appropriate when the individual perceptual agreement within the organization is fundamental to the research.

The Direct Consensus Model is based on the within-group consensus of the lower level units that determines the degree of its *functional isomorphism* to another form of the construct at the higher level. Consensus implies that perceptions are shared (Schneider et al., 2013). For example, the employee's perception or cognitive representation of the work environment in terms of psychological meaning for the person (psychological climate) when aggregated among the employees of the whole organization refers to the *shared* assignment of meanings among individuals within the organization (organizational climate). In order to justify the aggregation of the individual responses, it uses some within group agreement indexes such as the r_{wg} index (James, Demaree, & Wolff, 1984) or the Average Deviation Index (AD) (e.g. Burke, Finkelstein, & Dusig, 1999), coupled with the between-group variability (Chan, 1998).

Referent-Shift Consensus Models is similar to the direct consensus model in that the higher level construct is created by means of aggregating the individual-level data provided that the within-group agreement at the lower level is reasonable. What is different is that the lower level attributes assessed for consensus are conceptually different from those resulting from the original individual-level construct. An example of a referent-shift consensus model is the case of assessing first self-efficacy at an

individual level (“I am confident that I can perform this task”) and then shifting the referent in the efficacy perception from the self to the team as a whole (“I am confident that my team can perform this task”). Within-group consensus is used to justify the aggregation of individuals’ collective efficacy evaluations to indicate the value of the higher-level construct which in this case is team efficacy (Chan, 1998, p. 238).

Dispersion Models gives theoretical importance to the within-group variance (the dispersion of scores) at the lower level units to operationalize a central construct at the higher level, in contrast to the consensus models that treat it as error variance. Dispersion is by the definition a group-level quality as it makes reference to the variability within a group. The dispersion compositions makes it possible to uncover the character of the higher-level construct represented by dispersion along some lower-level variable. An example is the study of climate strength understood as the extent to which there is within-group consensus of climate perceptions. The empirical prerequisite for composition is the absence of multimodality in the within-groups distributions of lower level scores, which ensures that the variance along the original grouping variable is a representation of a meaningful dispersion construct.

Finally, Process Models are designed to examine the change in behaviors shown by an individual or by a team instead of assessing stable attributes or outcomes. In the process models, a process is composed from the lower to the higher level of conceptualization and the critical higher-level parameters (analogues to the lower level) are identified to compose the process and the interrelationships among the higher-level parameters that are homologous to the lower-level parameter relationships. For example, the integration process in organizational climate emergence can be understood as an increasing within-group agreement (changes in organizational climate strength) that is analogous to the concept of increasing intercorrelations among the psychological

climate (Chan, 1998). Although all the models commented above are present in the study of climate, the model that is probably the most frequently used among multilevel researchers is the direct consensus model (Chan, 1998).

In the recent years, it seems that the interest in organizational climate has come back and become more of a focus for organizational psychology than the concept of organizational culture (Schneider et al., 2013). In the years 2000-2012, there are over 50 articles that have climate as one of their central variables (Schneider et al., 2013). Climate has usually been conceptualized as a molar construct that makes reference to the organizational goals and the suitable means to attain them (see Hershberger, Lichtenstein, & Knox, 1994). However, the construct of climate has recently been extended to embrace a more specific focus (Carr, Schmidt, Ford, & DeShon, 2003), such as for example the climate for innovation, initiative of safety.

Climate is a multidimensional construct that emerges as a shared perception of the members of the team (González-Romá & Peiró, 2013; Rousseau, 1988). To have meaning, climate needs a referent (Pritchard & Karasick, 1973) as it serves as an umbrella concept for specific topics where perceptual measures are crucial (Rousseau, 1988), which means that climates are “for *something*” (Schneider & Reichers, 1983). By the same token, in the area of stress, Peiró (2001) endorsed an alternative collective approach to this phenomenon and emphasized the essential role of the inter-subjective experience of stress. He underlined the importance of considering social groups as the basic unit of analysis for the study of stress and highlighted that in order to understand the subjective experience of stress a person should not be separated from their context. In that way, shared perception of stressors can give rise to stress climate which can be understood as a phenomenon that emerges depending on whether the members of a

particular group in the organization perceive a certain event as stressful (Länsisalmi, Peiró, & Kivimäki, 2000).

Until now, however, the majority of studies of work stress have been developed at the individual level. During the last decades, the organizational psychology researchers have generally treated the organizational phenomena from a “micro” perspective in order to study individual behavior (Peiró, 1990). However, the growing complexity of the study of organizations often requires researchers taking a different perspective and the recent developments both in the study of occupational stress (Peiró, 2001; 2008; 2009) and in the multilevel approach to organizational psychology are showing a set of promising research areas with respect to its influence as an emergent collective construct. Nowadays, different levels of analysis have been recognized and different models and theories shed light on the multilevel nature of these phenomena. The multilevel perspective makes possible studying such complex concepts as perception and contributes to explore the connections between the individual and the collective (Gamero, 2007). In this way, it is possible to clarify to a greater extent and to expand the knowledge on the organizational phenomena.

At the individual level, given that distress and eustress appraisals can occur simultaneously as a response to the same demand (McGowan et al., 2006), there exist different profiles of stress appraisal depending on the configurations of distress and eustress appraisal (Escamilla, Rodríguez, & González-Morales, 2008). We believe that they should yield functionally isomorphic (Chan, 1998) types of stress climate at the group level, which can be analyzed at different levels of analysis, denoting patterns across individuals and groups (Meyer, Tsui, & Hinings, 1993).

Unfortunately, in the domain of stress, the research examining contextual factors that can conduct to positive or negative outcomes is less plentiful than the research on

individual factors (Bliese & Britt, 2001). However, “the existence of individual-level relationships may be a reason for believing that similar relationships exist at the group and organization levels” (Parker et al., 2003, p. 392). Also, there is evidence that aggregate climates can be important factors in explaining individual responses (e.g. Joyce & Slocum, 1979) and that stressors shared by the members of a group (group-level climate) have impact on the person-level stress outcomes (Grandey, Foo, Groth, & Goodwin, 2012). This influence on individual-level outcomes has been explained as being due to the impact the climate has on the cognitive and affective states of the individuals (Kopelman, Brief, & Guzzo, 1990).

The study of the characteristics of stress climate in teams and its and outcomes at the individual level should include longitudinal exploration of the relationships between stress climate and its individual outcomes, as well as the evolution of these outcomes over time. The time factor is essential in the study of the dynamic nature of the analyzed phenomena. The longitudinal design makes it more reasonable to consider the unidirectionality of causal effects. Also, having in mind that the majority of studies in the work and organizational psychology area are characterized by self-report measures, the use of longitudinal studies would help to reduce the possibility of appearance of the common-method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

All in all, we consider stress as a process that occurs in social groups, and that social groups can create collective stress, in addition to the individual stress that is experienced by each of the members of the group. It leads us to formulate the following **third research objective**: *To examine whether stress climate in teams is characterized by different degrees of collective eustress and distress appraisals.*

This general objective is unfolding in two more specific objectives: (a) *To check whether there exist different types of stress climate in work teams*, and (b) *To examine the evolution of individual outcomes for well-being in the different types of stress climate*.

Thorough the introductory part of this thesis, we have commented the issues related to stress appraisal, its measurement, outcomes, the impact of culture, and the role of the social context in the emergence of stress climate. These considerations have led us to formulate general and specific research objectives that will be briefly recapitulated in the next section.

Research Objectives

In the present thesis, the phenomenon of stress appraisal is explored from a general framework of the cognitive approach to stress (Lazarus & Folkman, 1984) and from the positive psychology perspective (Seligman & Csikszentmihalyi, 2000). Its main purpose is to develop and validate a measure of eustress and distress appraisal, to examine the invariance of stress appraisal-outcomes model for well-being in different cultures, and to check whether eustress and distress appraisals can be shared and yield different types of stress climate that affect individual well-being.

In the Article 1, we address the underlying premise of this thesis: the need to study not only the negative side of stress at work and its harmful effects, but also its positive side and beneficial effects it can entail. We focus on the potential of the complementary positive appraisal of stress which had hardly been studied (Peiró, 2008; 2009), given that the literature on stress has been dominated during years by the

negative approximation to stress and that the vast majority of empirical studies has been concentrated on the negative side of stress and on its negative consequences. That is why, in the Article 1, we wanted to draw attention to the necessity of carrying out more research on the joint study of distress and eustress experiences as well as to encourage the researchers to undertake some possible new research topics by suggesting new research directions and proposing new relationships that need to be explored.

Simultaneously, through the introduction, we have spotted some stress-related issues that could not be solved due to the gaps in the current knowledge. These gaps gave place to the new research objectives which are detailed below.

General Research Objective 1: *To construct a measure of stress that would conceptualize the appraisal of distress and eustress and where the same situations can be sources of both distress and eustress, adequate to use in different professions.*

Specific Research Objective 1.1.: *To construct a valid and reliable measure of eustress and distress from the CTT perspective.*

Specific Research Objective 1.2.: *To apply to this test the Rasch Analysis to obtain additional information about the construct of stress and about this scale that offers RA.*

We will try to respond to the Specific Research Objective 1.1. in the Article 2 where we aim at developing a new measure of eustress and distress appraisal, using the CTT approach. The Article 3 aims at responding to the Specific Research Objective 1.2., by applying Rasch Rating Scale Analysis to the scale developed in the Article 1.

General Research Objective 2: *To construct a model of stress appraisal in which we could see how eustress and distress appraisal relates to burnout and work engagement.*

Specific Research Objective 2.1.: *To test the invariance of the model of stress appraisal across different cultures.*

We will address these objectives in the Article 4 that is a cross-national study in which we study the consequences of eustress and distress appraisals for well-being in two European countries.

General Research Objective 3: *To examine whether stress climate in teams is characterized by different degrees of collective eustress and distress appraisals.*

Specific Research Objective 3.1.: *To check whether there exist different types of stress climate in work teams.*

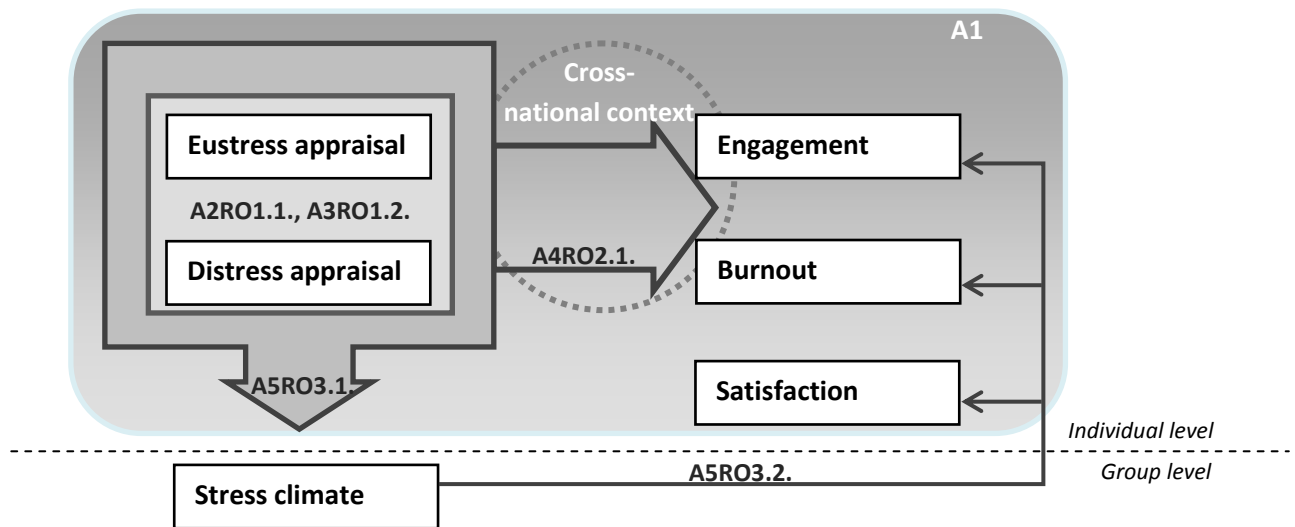
Specific Research Objective 3.2.: *To examine the evolution of individual outcomes for well-being in the different types of stress climate.*

The Article 5 aims at addressing these objectives by determining the types of stress climate, exploring the individual outcomes for well-being of these stress climate types, and analyzing their evolution over time.

Conceptual model of the thesis.

In order to make a general outline of the five articles, we produced a generic framework depicting the conceptual model of this thesis (see Figure 1). This framework responds to the investigation topics and the research objectives commented above, and serves as a guide for developing hypotheses.

Figure 1. *Conceptual model.*



Note. A = Article, RO = Research Objective.

The subsequent articles discuss more in detail the concepts and issues involved in the commented research objectives, drawing on different theoretical approaches, show empirical results, and discuss its relationship with previous evidence. Finally, we carry out a comprehensive synthesis and a general discussion of the results obtained in the articles forming part of this thesis that, taken together, make a contribution to the development of this line of research.



ARTICLE 1.

Pot ser positiu, l'estrès? Recerca de la proporció òptima:
entre la percepció positiva i negativa de l'estrès

Kozusznik, M.W.*, Rodríguez I.*, Tordera, N.* (2011). Pot ser positiu, l'estrès? Buscant la proporció òptima entre la percepció positiva i negativa de l'estrès [Can stress be positive? Looking for an optimum ratio between positive and negative stress appraisal]. *Anuari de Psicologia*, 13(1-2), 189-194.

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Resum¹²

L'objectiu d'aquest treball és reflexionar sobre el nou rumb que s'ha iniciat en la investigació sobre l'estrès laboral. S'hi posa de manifest l'existència d'una proporció de «positivitat» en la percepció de l'estrès que pot afectar la «florida», la síndrome d'esgotament professional i la implicació en el treball. En aquesta relació, la cultura hi pot tenir un paper fonamental.

Paraules clau: context cultural, estrès, Psicologia positiva, síndrome d'esgotament professional.

Abstract

The purpose of the present work is to reflect on a new direction in the research on work stress. The possible existence of a proportion of «positivity» in the perception of stress is emphasized. This proportion can affect the level of burnout, work engagement and flourishing. Culture can play a fundamental role in these relationships.

Keywords: *cultural context, stress, positive Psychology, burnout.*

El costat negatiu de l'estrès

L'estrès laboral és un dels grans problemes actuals. Durant més de la meitat d'aquesta dècada el fenomen de l'estrès ha estat considerat com una cosa negativa o patològica (Siegel i Schrimshaw, 2000), que amenaça el benestar i la salut, i provoca

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² For the Spanish translation of this article see Appendix II.

problemes psicosomàtics, accidents o malalties professionals (Peiró, 2007). L'estrès laboral pot tenir conseqüències perilloses per a les organitzacions en conjunt i afectar tant l'acompliment com la productivitat dels treballadors (Pearsall *et al.*, 2009; Wallace *et al.*, 2009), a més de provocar costos laborals per a les empreses (Cooper, Liukkonen i Cartwrihgt, 1996; Goetzel *et al.*, 1998; Podsakoff *et al.*, 2007).

Pot ser positiu, l'estrès?

Malgrat els seus efectes nocius, com més va més es posa de relleu que en el procés de l'estrès poden coexistir aspectes positius. Ja des de la perspectiva transaccional plantejada per Lazarus i Folkman (1984), es destacava la importància de com es percep i avalua la situació a l'hora de determinar-ne els resultats (Rodríguez, 1998). Així, si les situacions es perceben com una amenaça, és més probable que impliquen conseqüències negatives; tanmateix, i d'acord amb l'enfocament de la Psicologia positiva, si les situacions es perceben com un repte, com una oportunitat per a desenvolupar-se personalment i trobar sentit a la vida, augmenta la probabilitat d'obtenir-ne conseqüències positives. D'altra banda, com assenyalen Folkman i Moskowitz (2000), les respostes d'amenaça i repte no són mútuament excloents i poden ocórrer simultàniament, com a resultat del mateix estressor.

Per tant, les conseqüències de l'estrès difereixen segons l'avaluació que es faça dels estressors (Fogarty *et al.*, 1999; Boswell, *et al.*, 2004; Cavanaugh *et al.*, 2000). Hi ha estudis que demostren que l'avaluació dels estressors com a amenaça està relacionada amb nivells més alts de síndrome d'esgotament professional o «*burnout*» (Shaufeli i van Rhennen, 2006), mentre que l'avaluació positiva pot comportar un nivell d'esgotament professional baix (Ben-Zur i Michael, 2007); així mateix, la

percepció de repte du a la implicació en el treball (Maier i col·l, 2003; Quick *et al.*, 2003).

Hi ha una proporció òptima en la percepció negativa i positiva de l'estrès?

La coexistència de valoracions negatives i positives de l'estrès du a plantejar-se si hi ha una proporció òptima per a la salut psicològica. En aquesta línia Fredrickson i Losada (2005) van demostrar que hi ha proves del fet que una alta proporció d'afecte positiu, respecte al negatiu distingeix les persones que «floreixen» de les que no ho fan. Els autors entenen la «florida» (*flourishing*) com un dels components, juntament amb el benestar, de la salut mental (Keyes, 2002). De fet, la «florida» implica felicitat, satisfacció, flexibilitat de conducta, creixement i resiliència.

Aquests estudis obrin nous i interessants interrogants relacionats amb aquesta complexa dinàmica. En primer lloc, cal preguntar-se si els resultats trobats respecte a les emocions són aplicables a la investigació sobre l'estrès. És a dir, hi ha un punt òptim en la proporció entre la valoració positiva i negativa dels estressors?

Aquest plantejament porta a dues preguntes fonamentals: hi ha un grau de percepció d'estrès com a amenaça que es puga considerar positiu?; i, a l'inrevés, hi ha un grau de percepció d'estrès com a repte que es puga considerar negatiu?

La primera pregunta està més arrelada en la concepció de la percepció de l'amenaça com un signe d'alerta fonamental per a la supervivència. Així, certa percepció d'amenaça és positiva en la mesura que porta a prendre mesures per a corregir una situació potencialment perjudicial.

La segona pregunta es basa en alguns estudis recents. Hi ha investigacions que mostren que l'experiència de la càrrega de treball és una de les causes de l'addicció al

treball (Burke i Koksal 2002; Kanai i Wakabayashi, 2001). En aquesta línia, Schaufeli *et al.* (2009) van trobar que els metges residents continuen treballant massa hores fins i tot si se senten malalts. Els autors assenyalen algunes de les possibles causes d'aquest comportament: la pressió del grup, les excessives demandes del superior o fins i tot la cultura professional. Això ens porta a plantejar-nos si no perceben una amenaça real per a la seua salut; és possible que perceben la situació com un repte i no com una amenaça?; fins a quin punt podem parlar de compromís amb el treball o d'addicció al treball?

Si el compromís amb el treball sorgeix de la sobrecàrrega, pot ser perillós i portar a l'addicció al treball (Frasunkiewicz, 2007). Mentre que el compromís amb el treball és un fenomen positiu, l'addicció al treball resulta negativa (Schaufeli *et al.*, 2009). Una persona addicta al treball té una forta motivació interna que no és capaç de resistir. No obstant això, una persona compromesa amb la seua feina s'hi sent absorbida i té dificultats per a desfer-se'n (Bakker, Emmerik, i Euwema, 2006), però troba plaer fent-la (Kanai i Wakabayashi, 2001; Spence i Robbins, 1992; Schaufeli *et al.*, 2008).

En resum, és important estimular el plaer en el treball, ensenyar als treballadors a percebre els estressors de manera més positiva perquè troben sentit en allò que fan (Kanai i Wakabayashi, 2001). Però, així mateix, és important trobar un equilibri de manera que l'excés de «positivitat» no porte a la sobrecàrrega i a l'addicció al treball.

El paper de la cultura

L'ambient social és una realitat poderosa. La gent de la mateixa cultura comparteix «regles de valoració» (Averill, 1986) i formes de tractar amb el món

(Semmer *et al.*, 1992).

La cultura afecta tots els aspectes implicats en el procés de l'estrès laboral (Bliese i Jex, 2002, vegeu Glazer *et al.*, 2004) i provoca diferències tant en les percepcions com en les conseqüències dels estressors (Chiu i Kosinski, 1995; Glazer i Beehr, 2005).

Per tant, pot haver-hi diferències entre els països en l'èmfasi que es posa en la percepció d'amenaça o de repte. Així, doncs, a fi de ser capaç de donar una descripció vàlida del procés d'estrès, entendre'n l'essència i assegurar el coneixement que ajude a navegar en un context cada vegada més global, cal portar a terme investigacions transculturals (Triandis i Suh, 2002).

En l'actualitat, els estudis transculturals sobre l'estrès laboral es presenten com una nova direcció en la investigació (Cooper, 2000; Glazer *et al.*, 2004). Tanmateix, la investigació nord-americana i de l'Europa occidental domina l'àrea dels estudis sobre l'estrès (Gelfand, *et al.*, 2007; Siu, 2003; Xie, 1996). El problema de l'estrès laboral, però, és especialment rellevant per als països que experimenten canvis econòmics i socials, com els de l'Europa de l'est. Les diferències entre els països orientals i occidentals porten a plantejar-se si hi ha diferències en la forma de percebre els estressors i si és possible generalitzar les teories i les solucions de caràcter organitzatiu que s'han creat a occident. És possible que diferents països, amb diferents situacions i maneres de veure el món, tinguin diferents nivells de percepció positiva i negativa de l'estrès i que el nivell òptim de proporció entre ambdós aspectes siga diferent. Amb la incorporació de nous països a la UE, és important comparar i entendre les diferents cultures per poder contribuir al desenvolupament i al creixement social d'Europa.

El futur en la investigació de l'estrès

Malgrat l'auge de la Psicologia positiva, el concepte d'estrès positiu encara no està ben desenvolupat. Alguns autors, com ara Nelson i Simmons (2003), exhorten els investigadors a centrar els esforços en això.

La inclusió de la perspectiva positiva en l'estudi de l'estrès pot aportar noves energies a la investigació i dóna noves esperances per a crear i mantenir llocs de treball més positius i saludables (Nelson i Simmons, 2003). Això és especialment important, no solament al nostre país, sinó a tota Europa, ja que l'estrès és un dels principals problemes que afronta Europa, com assenyala l'Agència Europea per a la Seguretat i la Salut en el Treball. Per això, cal realitzar estudis transculturals que ajuden a entendre les peculiaritats de cada país i permeten abordar millor aquest problema.

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ARTICLE 2.

Development and Validation of the Valencia Eustress-Distress Appraisal Scale

Rodríguez, I.*, Kozusznik, M. W.*, & Peiró, J. M.*§ (in press). Development and validation of the Valencia Eustress-Distress Appraisal Scale. *International Journal of Stress Management*.

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§ IVIE

Abstract

The current paper presents the development and validation of the Valencia Eustress-Distress Appraisal Scale (VEDAS), carried out in two studies. In the first study, we subjected data from 603 Spanish social service professionals to principal axis factoring analysis, yielding four related factors (Relationships, Personal Accountability, Home-Work Balance, and Workload) for both the eustress and distress scales. In the second study, we employed Confirmatory Factor Analysis to test data from 431 Spanish social service professionals. Results yielded a four-factor structure for the distress (RMSEA = .07, CFI = .98, NNFI = .96, and SRMR = .06) and eustress (RMSEA = .07, CFI = .97, NNFI = .97, and SRMR = .08) scales. The results suggest essential unidimensionality of the VEDAS, with one dominating dimension (Relationships) and three secondary dimensions (Personal Accountability, Home-Work Balance, and Workload) for both the eustress and distress scales. The results provide evidence of the VEDAS's internal consistency reliability, criterion-related validity, and test-retest reliability. The VEDAS addresses a gap in currently available questionnaires, which include few tools to measure the coexistence of distress and eustress appraisals of the same demands.

Keywords: Valencia Eustress Distress Appraisal Scale, psychometric properties, stress appraisal, scale development

Work stress in organizations can have detrimental outcomes for both individuals (e.g., Wallace, Edwards, Arnold, Frazier, & Finch, 2009) and the organization

(Podsakoff, LePine & LePine, 2007). However, a view from the Positive Psychology perspective suggests that there is a positive side of stress in addition to its negative side. It shows that positive stress experiences might trigger beneficial consequences (Boswell, Olson-Buchanan, & LePine, 2004; Cavanaugh, Boswell, Roehling, & Boudreau, 2000) and be positively related to well-being, work satisfaction, organizational commitment (Scheck, Kinicki, & Davy, 1997) and engagement (Cavanaugh et al., 2000). This view of stress, referred to as *eustress*, points out the productive activation, vital energy (Schwarzer & Knoll, 2003) and positive appraisal of the stress experienced. In contrast, the label of *distress* has been given to stress experiences that are mainly related to negative emotions and strain.

Thus, distress and eustress experiences depend on appraisal processes that are crucial in the process of stress (Lazarus & Folkman, 1984). Along these lines, a stressor can be appraised as a source of harm and threat (distress) or as a source of challenge and opportunity (eustress) (Lazarus, 1993). In the latter case, the individual feels confident about successfully overcoming the demands by employing adequate resources (see also Simmons & Nelson, 2007). Although the joint study of distress and eustress experiences is rather scarce, threat and challenge are not necessarily mutually exclusive (Lazarus & Folkman, 1984), and the existing evidence shows that they may coexist (Folkman, 1997; McGowan, Gardner, & Fletcher, 2006). Moreover, threat and challenge appraisals may occur simultaneously as a reaction to the same demand (e.g., promotion is likely to be appraised as both a challenge and a threat, Lazarus & Folkman, 1984, p. 33), but with different degrees of intensity (Folkman, 1997; McGowan, Gardner, & Fletcher, 2006). Therefore, it is important to understand the different combinations and interactions of these two types of experiences, and their antecedents and consequences for individuals. In this context, it would be helpful to have a questionnaire available that

could measure the appraisals of both eustress and distress generated by the same sources of stress, and their possible coexistence.

Given the complexity of the phenomenon of stress, there are many different methods to measure its appraisal. There are scales that assess only the appraisal of distress, for example, *Pressure Management Indicator* (PMI) (Williams & Cooper, 1998) and *Occupational Stress Indicator* (OSI) (Cooper, Sloan, & Williams, 1988). Likewise, some questionnaires focus on the appraisal of eustress (O’Sullivan, 2011), whereas others provide two different sets of items about distressful and eustressful situations at work, in order to rank their appraisal, for example, *Stress Appraisal Measure*, (SAM) (Peacock & Wong, 1990). Finally, the *Index of Sources of Stress in Nursing students* (ISSN) (Gibbons, Dempster, & Moutray, 2009) evaluates the appraisal of distress and eustress using the same statements as sources of “hassles” and “uplifts;” however, its items are specifically worded for the nursing profession. To date, there are no such measures that focus on eustress and distress appraisal features worded in a generic way to be used in different occupations.

These limitations in the measurement of eustress and distress appraisals provided the initial impetus for the creation of the Valencia Eustress-Distress Appraisal Scale (VEDAS). The initial Spanish-version VEDAS is available on the IJSM website. Our objective was to produce and validate a multidimensional questionnaire that would provide a set of statements representing demanding situations that could be appraised *both* as distress and eustress, and that could be used in different occupations.

Item Development

The items included in the VEDAS were initially selected from the “stressor scale” of the PMI (Williams & Cooper, 1998), which was designed to measure the

perception of pressure. The items pertaining to the “stressor scale” of the PMI initially belonged to the “Sources of Pressure” subscale of the OSI (Cooper, Sloan, & Williams, 1988), whose authors reported that for the Sources of Pressure Scale “*the ratio of items to participants was too small to enable [factor analysis] to be done[...]. These were produced by assigning the items to the six subscales [...].*” (Williams & Cooper, 1998, p. 308). Consequently, Williams and Cooper (1998) undertook the task of finding an alternative factor structure in the PMI that might provide a better fit to the data, and they found an 8-factor structure of the “stressor scale” (Workload, Daily Hassles, Relationships, Personal Accountability, Lack of Recognition, Home-Work Balance, Managerial Role and Organizational Climate). However, one of the factors did not show satisfactory reliability (“Daily Hassles” $\alpha = .64$). Thus, Williams and Cooper (p. 319) concluded that clarification of the factorial structure and improvements in the reliability of the scales would still be needed in further research. Moreover, Williams and Cooper did not provide information about the item analysis (item-item, item-scale correlations, and item loadings on the factors) for the PMI “stress scale.” Therefore, the purpose of the present study was to find out whether it is possible to obtain a scale that would have an equivalent factorial structure, with the same items loading in the factors identified in the eustress and distress scales, on the basis of the PMI items.

The fundamental issue for the creation of the VEDAS is the appraisal of stressors and the variability in the way stress phenomena can be appraised. Therefore, we included items that can be appraised both as eustress and distress. Asking only about the eustress appraisal of some situations and the distress appraisal of other situations would imply losing valuable information about the coexistence of both eustress and distress appraisals (Folkman, 1997; McGowan, Gardner, & Fletcher, 2006) in response to the same demanding situation (Lazarus & Folkman, 1984). Obtaining this

information might reveal the complexities of appraisals in stress situations, where both opportunities and threats are present in the same situation.

Selection of the Initial Item Pool

In order to create the VEDAS, we used as a starting point, the 40 items pertaining to the eight dimensions of the “stressor scale” from the PMI (Williams & Cooper, 1998). We identified items that reflected the dimensions, maintained those that met the demands for an individual, and ensured that even if the situation was stressful, both distress and eustress appraisals were possible. Six of the items on the PMI only assumed a distress experience and, therefore, were eliminated (example of an excluded item: “*An absence of any potential career advancement*”). Of the remaining 34 items, some of the items were reformulated to ensure that both appraisal alternatives were meaningful (example of a reformulated item: from “*Underpromotion - working at a level below my level of ability.*” on the PMI to “*Working at a level below my level of ability.*” in the initial item pool from the VEDAS). Finally, the items were translated into Spanish according to the standard translation/back-translation procedure (Brislin, Lonner, & Thorndike, 1993).

Developing the Measurement Scale

We also modified the original Williams and Cooper (1998) response scale, such that in addition to the existing Likert-type response scale for distress appraisal, we added a similar response scale for the eustress appraisal. In this way, each of the items had two corresponding six-point Likert scales that enabled the respondents to indicate their simultaneous positive and negative appraisals of the same stressful situations items. In order to avoid the implication that every encounter can be appraised simultaneously as a stressor and an uplift, which would be overstretching, the following

response alternative was included in the response scales for every item “1 = *Very definitely is NOT a* [a source pressure/ a source of opportunity-challenge].” In this way, subjects could indicate that a given event is not appraised simultaneously as a source of pressure and as an opportunity-challenge. Therefore, the scale for distress appraisal is: 1 = *Very definitely is NOT a source of pressure*, 2 = *Definitely is NOT a source of pressure*, 3 = *Generally is NOT a source of pressure*, 4 = *Generally IS a source of pressure*, 5 = *Definitely IS a source of pressure*, 6 = *Very definitely IS a source of pressure*; and the scale for eustress appraisal is: 1 = *Very definitely is NOT a source of opportunity/challenge*, 2 = *Definitely is NOT a source of opportunity/challenge*, 3 = *Generally is NOT a source of opportunity/challenge*, 4 = *Generally IS a source of opportunity/challenge*, 5 = *Definitely IS a source of opportunity/challenge*, 6 = *Very definitely IS a source of opportunity/challenge*.

Instructions for respondents were also revised, formulating them as follows:

Almost anything can be a source of pressure to someone at a given time, and individuals perceive potential sources of pressure differently. The person who says he or she is under a tremendous amount of pressure at work at the moment usually means that he or she has too much work to do. But that is only half the picture. The same situation may be an opportunity or a challenge for him or her to grow either personally or professionally. The items presented in the following section are all potential sources of pressure and/or opportunity/challenge. You are required to rate them in terms of the degree of pressure and the degree of opportunity/challenge you perceive each may mean to you. Please answer by placing an “X” on the number corresponding to your response.

In order to encourage the respondents to consider *both* the appraisal as threat and the appraisal as challenge, and avoid priming one kind of appraisal more than the other (i.e., the appraisal of distress), we mentioned in the instructional set the fact that different situations and work may be sources of both eustress and distress.

Study 1: Development of the Eustress and Distress Scales

The main objectives of Study 1 were (1) to select the appropriate stressful situations that could be appraised as both distress and eustress and included in the VEDAS and (2) to find the most appropriate factor structure to ensure satisfactory reliability for the distress and equivalent eustress scales. First, we explored the relationships among the 34 items in the item pool. Second, we performed Exploratory Factor Analysis. The items were required to have sufficient associations with their respective dimensions proposed in the PMI (Williams & Cooper, 1998). Given that the aim was to build an equivalent scale, the same factorial structure had to be kept for the appraisal of both distress and eustress. The items had to have adequate loadings on the factor dimensions, and we eliminated those with insufficient loadings. Finally, we employed item-subscale correlations. The cut-off value of Cronbach's alpha for each dimension was .70 (Nunnally, 1978).

Method

Participants and procedure. A sample of 603 employees (109 male, 484 female; 10 participants failed to specify their sex) out of 800 possible employees in Public Social Services in the Valencian Community completed the questionnaire. Therefore, the response rate was 75%. We attribute this high response rate to the direct contact data collection procedure we used.

The sample was composed of professionals, including psychologists, educators, social workers, administrative workers, educational psychologists and sociologists. All participants were Spanish, predominantly from a middle-class socioeconomic background (INE, 2010), and ranged in age from 20 to 70 years ($M = 37.52$, $SD = 8.62$). The sex composition of our convenience sample, 82% women, reflects the real sex distribution in the social services sector in the region studied. According to regional statistics, women constitute 87.9% of social services employees in the Valencian Community (IVE, 2010). Once the social service centers had been contacted by phone and agreed to participate, members of the research team administered a Spanish version of a self-completion questionnaire to the employees who volunteered to participate in the study. The majority of the questionnaires was filled out and gathered on site. However, when answering the questionnaires on-site was not possible, we distributed the questionnaires individually to the participants and the research team collected completed questionnaires individually from them in a sealed envelope about four days later. We assured anonymity of the data.

Results

Item-item correlations. First, we computed separate inter-item correlations for each of the eustress and distress scales (see Table 1 for distress and Table 2 for eustress scale). Based on these results and following DeVellis' (2003) recommendations, 8 items were excluded. DeVellis suggests that "any item that is positively correlated with some and negatively correlated with others in a homogenous set should be eliminated if no pattern of reverse scoring items eliminates the negative correlations" (p. 106). Indeed, this was the problem with the eight discarded items.

Table 1
Correlations Between the Initial Pool of 36 Items for the distress scale.

	dis1	dis2	dis3	dis4	dis5	dis6	dis7	dis8	dis9	dis10	dis11	dis12	dis13	dis14	dis15	dis16	dis17
dis1	1																
dis2	.13	1															
dis3	.13	.24	1														
dis4	.04	.24	.30	1													
dis5	.19	.22	.24	.56	1												
dis6	.16	.41	.17	.28	.30	1											
dis7	.15	.15	-.10	.17	.14	.24	1										
dis8	.19	.19	.06	.38	.38	.38	.17	1									
dis9	.14	.17	.09	.12	.02	.21	.35	.21	1								
dis10	.09	.13	.15	.38	.54	.24	.26	.42	.05	1							
dis11	.00	.14	.17	.33	.25	.30	.17	.20	.01	.45	1						
dis12	.04	.32	.25	.29	.32	.33	.21	.31	.09	.48	.47	1					
dis13	.19	.30	.13	.30	.33	.41	.37	.47	.26	.34	.18	.38	1				
dis14	.08	.30	.19	.38	.45	.28	.26	.39	.17	.55	.37	.49	.39	1			
dis15	.14	.17	.20	.37	.53	.29	.15	.40	.05	.61	.44	.41	.25	.50	1		
dis16	.08	.17	.23	.45	.50	.20	.16	.31	.08	.52	.43	.39	.25	.55	.70	1	
dis17	.34	.33	.09	.29	.32	.31	.40	.37	.24	.26	.19	.34	.45	.39	.33	.33	1
dis18	.11	.28	.20	.45	.43	.34	.21	.40	.23	.44	.32	.41	.41	.58	.50	.58	.39
dis19	.17	.12	.15	.24	.16	.14	.21	.17	.21	.25	.25	.34	.18	.28	.23	.38	.26
dis20	.12	.24	.21	.35	.32	.26	.03	.31	.15	.34	.26	.34	.26	.43	.35	.46	.23
dis21	.17	.14	.14	.22	.23	.32	.12	.28	.14	.33	.51	.35	.29	.42	.44	.41	.36
dis22	.21	.34	.23	.28	.21	.33	.27	.22	.31	.30	.31	.37	.33	.35	.31	.36	.41
dis23	.21	.26	.19	.25	.26	.25	.29	.31	.35	.22	.13	.29	.43	.33	.24	.27	.52
dis24	.19	.12	.15	.18	.18	.21	.14	.16	.10	.25	.43	.26	.27	.29	.33	.31	.34
dis25	.15	.16	.01	.22	.21	.15	.25	.30	.20	.24	.14	.17	.33	.28	.24	.26	.38
dis26	.17	.03	.15	.05	.16	.00	.28	.16	.28	.20	.13	.26	.23	.19	.21	.22	.39
dis27	.19	.25	.17	.33	.26	.25	.31	.40	.24	.32	.22	.29	.46	.39	.29	.38	.57
dis28	.30	.07	.13	.25	.30	.14	.20	.38	.17	.34	.23	.26	.30	.39	.42	.38	.52
dis29	.16	.23	.15	.23	.29	.24	.19	.24	.26	.30	.18	.24	.39	.39	.29	.32	.29
dis30	.29	.24	.11	.34	.33	.32	.38	.44	.35	.29	.24	.30	.53	.39	.31	.30	.65
dis31	.20	.18	.09	.28	.28	.27	.34	.28	.20	.33	.26	.32	.42	.35	.34	.36	.54
dis32	.06	.24	.28	.37	.38	.23	.00	.28	.13	.37	.28	.32	.24	.44	.39	.48	.17
dis33	.09	.28	.16	.29	.27	.34	.23	.30	.16	.34	.46	.48	.37	.38	.42	.40	.34
dis34	.17	.21	.18	.24	.25	.25	.23	.27	.20	.29	.19	.22	.42	.38	.23	.31	.34

Table 1 (continued)
Correlations Between the Initial Pool of 36 Items for the Distress Subscale.

	dis18	dis19	dis20	dis21	dis22	dis23	dis24	dis25	dis26	dis27	dis28	dis29	dis30	dis31	dis32	dis33	dis34
dis18	1																
dis19	.22	1															
dis20	.44	.33	1														
dis21	.37	.27	.34	1													
dis22	.31	.46	.39	.44	1												
dis23	.39	.28	.30	.29	.40	1											
dis24	.25	.24	.27	.68	.38	.33	1										
dis25	.29	.17	.23	.18	.28	.42	.29	1									
dis26	.23	.30	.21	.23	.28	.43	.29	.33	1								
dis27	.41	.31	.35	.32	.35	.49	.33	.49	.43	1							
dis28	.34	.38	.28	.39	.34	.48	.34	.42	.41	.55	1						
dis29	.38	.26	.34	.27	.26	.30	.29	.28	.18	.35	.36	1					
dis30	.39	.25	.26	.36	.32	.51	.38	.46	.41	.63	.61	.43	1				
dis31	.37	.22	.36	.37	.31	.38	.36	.34	.42	.53	.43	.33	.61	1			
dis32	.51	.27	.59	.31	.29	.26	.32	.18	.21	.34	.24	.37	.25	.32	1		
dis33	.42	.39	.29	.47	.42	.27	.43	.27	.27	.40	.37	.32	.33	.34	.38	1	
dis34	.32	.25	.31	.30	.38	.38	.30	.35	.27	.38	.38	.28	.36	.35	.39	.36	1

Note. $n = 603$. Correlations .13 and above are sig. at $p < .05$ and correlations .17 and above are sig. at $p < .001$. Dis1, Dis2, ... are names of the items from the initial item pool that measure the appraisal of distress.

Table 2
Correlations Between the Initial Pool of 36 Items for the eustress scale.

	eus1	eus2	eus3	eus4	eus5	eus6	eus7	eus8	eus9	eus10	eus11	eus12	eus13	eus14	eus15	eus16	eus17
eus1	1																
eus2	.11	1															
eus3	-.08	.29	1														
eus4	.04	.19	.29	1													
eus5	-.03	.25	.36	.49	1												
eus6	-.04	.34	.31	.22	.37	1											
eus7	.30	-.12	-.24	.14	-.03	-.04	1										
eus8	.08	.24	.22	.35	.46	.37	-.01	1									
eus9	.25	.01	-.04	.10	.02	-.03	.39	.07	1								
eus10	-.01	.25	.28	.39	.53	.41	.11	.50	.07	1							
eus11	.03	.13	.12	.18	.23	.31	.13	.31	.18	.43	1						
eus12	.07	.41	.22	.22	.20	.29	-.03	.27	.15	.29	.32	1					
eus13	.18	.21	-.01	.25	.31	.31	.22	.31	.25	.37	.30	.34	1				
eus14	.06	.32	.25	.31	.50	.28	-.04	.35	.14	.34	.34	.28	.36	1			
eus15	.06	.28	.32	.32	.35	.35	.03	.34	.12	.45	.42	.37	.28	.46	1		
eus16	-.01	.27	.32	.40	.42	.34	.16	.33	.23	.45	.41	.31	.34	.45	.72	1	
eus17	.19	.08	-.09	.23	.14	.12	.40	.15	.34	.22	.23	.13	.35	.19	.21	.30	1
eus18	-.01	.29	.25	.37	.38	.35	.04	.38	.14	.47	.36	.31	.38	.46	.49	.63	.26
eus19	.18	-.01	-.04	.12	-.06	-.06	.33	.00	.32	.02	.14	.13	.22	.15	.20	.19	.32
eus20	.07	.32	.26	.25	.36	.32	.04	.28	.08	.38	.36	.26	.33	.48	.43	.51	.18
eus21	-.07	.30	.21	.10	.16	.32	.02	.19	.05	.30	.45	.32	.26	.28	.40	.33	.09
eus22	.09	.29	.16	.23	.17	.30	.11	.22	.17	.22	.30	.41	.30	.21	.34	.32	.23
eus23	.16	.01	-.07	.19	.01	.07	.36	.14	.40	.15	.18	.12	.26	.05	.16	.20	.28
eus24	-.08	.22	.17	.12	.21	.28	.05	.19	.11	.34	.42	.17	.32	.27	.25	.29	.16
eus25	.07	.26	.18	.22	.27	.24	.00	.32	.09	.34	.24	.22	.34	.29	.29	.29	.24
eus26	.13	-.02	.03	.07	.00	.07	.22	.10	.30	.05	.28	.16	.16	.12	.22	.23	.12
eus27	.17	.08	-.04	.16	.10	.09	.28	.16	.31	.17	.20	.17	.36	.20	.17	.27	.44
eus28	.27	.15	.08	.19	.19	.13	.23	.16	.25	.22	.22	.21	.35	.23	.20	.23	.33
eus29	.20	.05	-.10	.06	.16	.10	.27	.18	.34	.20	.22	.13	.33	.30	.15	.21	.20
eus30	.31	-.03	-.14	.17	.06	.04	.47	.07	.43	.13	.17	.11	.27	.17	.14	.14	.42
eus31	.25	.07	-.14	.21	.05	.12	.27	.10	.28	.19	.24	.15	.37	.20	.21	.21	.43
eus32	-.10	.28	.33	.16	.42	.37	-.02	.35	.07	.48	.34	.28	.24	.35	.49	.50	.15
eus33	-.04	.16	.18	.06	.22	.28	.00	.18	.13	.33	.42	.30	.28	.30	.40	.39	.14
eus34	.11	.32	.27	.18	.35	.31	.08	.25	.09	.39	.30	.29	.41	.32	.26	.33	.21

Table 2 (continued)
 Correlations Between the Initial Pool of 36 Items for the eustress scale.

	eus18	eus19	eus20	eus21	eus22	eus23	eus24	eus25	eus26	eus27	eus28	eus29	eus30	eus31	eus32	eus33	eus34
eus18	1																
eus19	.07	1															
eus20	.56	.06	1														
eus21	.34	.04	.38	1													
eus22	.32	.19	.32	.41	1												
eus23	.16	.42	.20	.12	.20	1											
eus24	.29	.06	.38	.61	.35	.24	1										
eus25	.31	.06	.31	.24	.32	.26	.40	1									
eus26	.06	.35	.12	.19	.32	.32	.24	.15	1								
eus27	.16	.32	.09	.09	.24	.35	.20	.36	.25	1							
eus28	.21	.12	.23	.19	.18	.19	.23	.31	.18	.48	1						
eus29	.19	.27	.24	.18	.20	.35	.21	.22	.22	.23	.28	1					
eus30	.10	.42	.14	.08	.27	.44	.18	.19	.26	.43	.39	.50	1				
eus31	.17	.28	.19	.16	.15	.28	.15	.18	.32	.31	.28	.35	.41	1			
eus32	.46	-.06	.55	.35	.22	.12	.35	.43	.10	.19	.20	.23	.08	.14	1		
eus33	.33	.05	.38	.47	.28	.11	.39	.31	.20	.21	.31	.20	.11	.24	.47	1	
eus34	.40	.04	.40	.40	.31	.15	.33	.38	.11	.21	.33	.24	.17	.12	.50	.44	1

Note. $n = 603$. Correlations .13 and above are sig. at $p < .05$ and correlations .17 and above are sig. at $p < .001$. Eus1, Eus2, ... are names of the items from the initial item pool that measure the appraisal of eustress.

Exploratory factor analysis. Second, we computed intercorrelations among the remaining 26 items; the resulting correlation matrices were subjected to Principal Axis Factoring analysis to reveal the structure of an underlying set of variables and the least number of factors to explain the common variance (Allen & Bennet, 2010). Given that the same person is appraising multiple stressors, consistency in the types of appraisal of the same stressors as positive and negative across individuals is possible, which suggests that within-person appraisals can be correlated across the various dimensions of the VEDAS. Therefore, we employed an oblique rotation by direct oblimin procedure.

Third, we performed two exploratory factor analyses, one for the eustress scale and the other for the distress scale. These procedures yielded a five-factor structure, following the rule of Eigenvalues > 1.0 . Four of the factors were theoretically well-grounded. However, the fifth factor did not adhere to theory and was difficult to interpret. Therefore, the decision was made to force a four-factor solution for the scales (see Cattell's, 1966, suggestion for scree test). The goal was to explore how the items from the fifth factor distribute in the four proposed factors. In order to obtain equivalent structures for the distress and eustress scales, each item had to have significant factor loadings of $\geq .35$ (Overall & Klett, 1972) on both the distress and corresponding eustress scales. On the basis of the results of the factorial analysis, we obtained four categories of stressful events at work containing 21 items (see Table 3).

The proposed four-factor solution explained 42% of the variance for eustress and 48% of the variance for distress. The factors to assess the stressful events at work were: Relationships, Personal Accountability, Workload, and Home-Work Balance. On the measure of Distress, Factor 1 (Relationships) accounted for 36.13% of the variance; Factor 2 (Personal Accountability) accounted for 5.07% of the variance; Factor 3

(Home-Work Balance) accounted for 4.13% of the variance; and Factor 4 (Workload) accounted for 2.80% of the variance. On the measure of Eustress, Factor 1 (Relationships) accounted for 28.64% of the variance; Factor 2 (Home-Work Balance) accounted for 6.10% of the variance; Factor 3 (Personal Accountability) accounted for 4.27% of the variance; and Factor 4 (Workload) accounted for 2.84% of the variance. For both scales the variance explained by the first factor was over four times greater than the variance explained by the second factor, suggesting that the distress and the eustress appraisal scales comprise one dominant dimension and they are inherently tapping other secondary, but not redundant, dimensions, which is termed essential unidimensionality (Slocum-Gori & Zumbo, 2011) and will be assessed in further analyses¹.

For the Distress scale, the average factor loadings for the items in the Relationships factor, Personal Accountability factor, Home-Work Balance factor, and Workload factor were robust (.62, .66, .58, and .35, respectively). For the Eustress scale, the average factor loadings in the Relationships factor, Personal Accountability factor, Home-Work Balance factor, and Workload factor were robust (.61, .60, .54, and .31, respectively). There were several cases of slight cross-loadings of items. The greatest cross-loading was the average loading of the Relationships Eustress factor on the Workload Eustress factor (.31). Seventeen out of the 21 items on the distress scale (81%) had significant factor loadings ($\geq .35$ according to Overall & Klett, 1972) in just one of the four factors, and 17 out of the 21 items on the Eustress scale (81%) had

¹ Essential unidimensionality is frequent among psycho-educational and health measures (Slocum-Gori & Zumbo, 2011). It means that the scale comprises one dominant and other secondary (but not dispensable) factors, with items free to load on all the dimensions. It occurs when one-factor solution is rejected, but Eigenvalues, Scree plot and correlation analyses suggest one dominant and other secondary dimensions (Slocum-Gori, Zumbo, Michalos, & Diener, 2009). Essential unidimensionality has to be distinguished from strict unidimensionality where the factor model posits one factor with all the items loading on that one factor. However, it means that, if necessary, a test can be used with confidence to measure global score (Slocum-Gori & Zumbo, 2011), while at the same time allowing to consider that its items refer to substantially different areas.

significant factor loadings in just one of the four factors. Despite their low saturation, items 3 (“*Working at a level below my level of ability*”), 8 (“*Inadequate or poor quality of training/management development*”), and 13 (“*Conflicting job tasks and demands in the role I play*”) were kept for theoretical reasons (Mulaik, 1972; Stevens, 1996) and to maintain a comparable number of items in the four factors extracted in the Distress and Eustress scales in order to perform meaningful comparative studies considering the same sources of eustress and distress. Table 3 displays the saturations of the items on the four factors of both the Distress and Eustress scales.

The equivalent four-factor solution for distress and eustress scales was a good fit for our research objective. First, the four factors included only universal items with neutral wording to assess both positive and negative appraisals of the stressful events. Second, the items describe pressure that may affect all the employees in an organization, and they provide the opportunity for everyone to participate in the stress assessment (Williams & Cooper, 1998). For example, the Managerial Role factor turned out not to appear in the factorial structure. Its items were redistributed to other factors, predominantly to the Personal Accountability factor. Finally, the four-factor solution for stressful categories was reinforced by theoretical considerations of workload, relationships at work, personal accountability, and home-work balance as the most important sources of work stress and causes of strain at work (Coomber Todd, Park, Baxter, Firth-Cozens, & Shore, 2002; Michaels, Handfield-Jones, & Axelrod, 2001; Relationships source of workplace stress, 2002). Moreover, prevention of these work-related stressors has become strategic imperatives for many organizations (Greenblatt, 2002). Given that not all stressors are bad, this article presents the VEDAS as one approach for evaluating how good or bad these stressors are to an individual, which

would help practitioners determine if organizational interventions are required or not.

Each of these four stressor categories are briefly described below.

Table 3.

Exploratory Factor Analysis: Item loading for every factor of the VEDAS.

	Factor Loadings							
	Distress				Eustress			
	F1	F2	F3	F4	F1	F2	F3	F4
Factor 1. Relationships ($\alpha = .87$ for distress and $\alpha = .82$ for eustress)								
10. Lack of social support from people at work.	.56	.04	-.01	.21	.57	.08	.03	.10
14. Discrimination and favoritism	.56	.11	-.06	.11	.59	.03	.04	.09
15. Feeling isolated	.88	-.04	-.01	-.03	.74	.04	-.03	-.01
16. Being undervalued	.92	.03	-.01	-.16	.82	.04	-.04	-.09
18. Inadequate feedback about my own performance	.50	.26	.01	.07	.55	.09	.14	-.06
20. Unclear promotion prospects.	.29	.10	-.19	.01	.39	-.04	.33	.02
Factor 2. Personal Accountability ($\alpha = .80$ for distress and $\alpha = .71$ for eustress)								
17. Having to take risks	-.02	.67	-.01	.07	.08	.59	-.08	-.01
27. Dealing with ambiguous or 'delicate' situations	-.01	.82	.02	.02	-.05	.67	-.01	.03
28. Having to adopt a negative role (such as sacking someone).	.16	.59	-.03	-.02	.08	.55	.05	.04
31. Implications of mistakes you make.	.03	.56	-.15	-.06	-.04	.57	.06	-.07
Factor 3. Home-Work Balance ($\alpha = .82$ for distress and $\alpha = .76$ for eustress)								
11. My partner's negative attitude towards my job and career	.28	-.16	-.46	.20	.42	.01	.30	-.02
21. Absence of emotional support from others outside work	.04	.03	-.87	-.08	.06	-.08	.78	.07
22. Demands that work makes on my private/social life	-.05	.16	-.44	.25	-.05	.15	.43	.22
24. Lack of practical support from others outside work	-.06	.14	-.77	-.03	-.08	.12	.74	-.02
33. Pursuing a career at the expense of home life	.30	-.01	-.35	.12	.23	.02	.44	-.05
Factor 4. Workload ($\alpha = .70$ for distress and $\alpha = .68$ for eustress)								
2. Taking my work home	-.03	.08	.05	.62	-.07	.03	-.01	.72
3. Working at a level below my level of ability	.20	.02	-.01	.05	.26	-.12	.01	.36
6. Not being able to 'switch off' at home	.07	-.01	-.13	.57	.30	-.07	.17	.26
8. Inadequate or poor quality of training/management development.	.27	.18	-.02	.17	.51	.08	-.06	.10
12. Having to work very long hours	.29	.01	-.16	.40	.09	.23	.17	.35
13. Conflicting job tasks and demands in the role I play	.13	.39	.01	.29	.23	.48	.07	.05

Note. $n = 603$. Factor loadings of items grouped under each specific factor are marked in **bold**.

Workload refers to the amount or difficulty of the work one must deal with, and it may be a source of strain or challenge (Podsakoff et al., 2007). Relationships at work signify how well one gets along with the people around him/her, particularly at work. These relationships at work might be a source of distress, but also a great source of eustress (Ford, 2006). Personal Accountability makes reference to the extent to which a person takes responsibility for actions and decisions, and it has both negative and positive sides. In fact, it might be related to well-being (Van den Berg & Pitariu, 2007). Home-Work Balance means effective functioning at work and at home “with a minimum conflict between work and non-work demands” (Greenblatt, 2002, p. 179). It may have both negative and positive aspects in terms of work-to-family/family-to-work interference and work-to-family/family-to-work facilitation (Demerouti, Bakker, & Voydanoff, 2010) or enrichment (McNall, Nicklin, & Masuda, 2010).

Item-subscale correlation. Finally, after carrying out the exploratory factor analysis, Pearson’s product moment correlation coefficients were computed between each item and the total corrected score of its corresponding experimental VEDAS subscale. We followed the recommendation of “Cronbach’s alpha if the item is deleted,” and we excluded one item, which increased Cronbach’s alpha. Items that correlated with the total score of their respective subscales at a significance level of less than .05 were excluded. As a result, one item was excluded. The alpha coefficients for the final VEDAS scale in this sample are presented in Table 5. Each subscale had the following number of items, both as distress and as eustress: relationships, five items; personal accountability, four items; workload, six items; and home-work balance, five items.

In conclusion, the reductionist approach based on the item-item and item-subscale correlations, as well as the factor loadings in Study 1, has shown to be an appropriate application, and the initial item pool was reduced from 40 to 20 items.

Exploratory Factor Analysis revealed one dominant factor and three secondary factors for the distress and eustress scales. Whereas the EFA is a theory-generating method that can suggest a structure for a measure (Sayers, Curran, & Mueser, 1996), the “Confirmatory Factor Analysis is powerful because it provides explicit hypothesis testing for factor analytic problems” and it is “the more theoretically important...of the two major factor analytic approaches” (Gorsuch, 1983, p. 134). The search for additional information on the dimensionality of the distress and eustress scales of the VEDAS required a new study to further analyze and evaluate its items and subscales.

Study 2: Scale Refinement and Evaluation

The VEDAS developed in Study 1 included four dimensions of Distress and Eustress corresponding to different types of stressful situations at work that might be appraised as threats and/or as opportunities: Relationships, Personal Accountability, Home-Work Balance, and Workload. To seek further information on the dimensionality of the VEDAS distress and eustress scales, a new related sample was used to further analyze the selected items and the internal consistency reliability of the subscales. The subscale correlations were also inspected, and two Confirmatory Factor Analyses were performed for the eustress and distress scales to compare the unidimensional and the four-factor solution for the VEDAS. To test the validity of the VEDAS scale scores, we examined possible convergences with the scores on other questionnaires specifically designed to evaluate burnout, work engagement, satisfaction, and general psychological health. Finally, to assess the stability of the eustress and distress appraisal scales over time, we calculated 6-month test–retest correlation coefficients (Pearson’s r).

Method

Participants and procedure. All the subjects who participated in Study 1 were invited to answer the questionnaire again six months later. A sample of 431 subjects responded to the questionnaire. Seventy-two were male, 272 were female (79%), and 87 participants failed to specify their sex. Participants ranged in age from 21 to 65 years ($M = 38.33$, $SD = 8.55$). The response rate obtained was 71%. All participants were Spanish and predominantly from a middle-class socio-economic background (INE, 2010). The data collection procedure was similar to the one followed in the previous study. Verbal consent to participate in the study was obtained from the participants. Study 2 is based on the data gathered from subjects in this second wave (T2). When longitudinal analyses were performed, the data obtained from these 431 subjects at time 1 (T1) were used.

Measures.

VEDAS. The 20 items used corresponded to the four hypothetical categories of stressful events at work from the final version of the VEDAS, described in Study 1. The response scale was from 1 to 6, where higher scores indicate greater levels of eustress and distress.

Maslach Burnout Inventory – General Survey (MBI-GS). The Spanish version (Salanova, & Schaufeli, 2000) of the Maslach Burnout Inventory in its General Survey form (MBI-GS, Maslach, Jackson, & Leiter, 1996) contained 16 items (e.g., “*I feel emotionally drained by my work*” and “*Working all day is really a strain for me*”) measured on a 7-point scale from 0 (*never*) to 6 (*every day*). We calculated a single mean burnout score, where the higher the score, the higher the level of burnout. Internal consistency reliability of this measure was .86 in our sample.

Utrecht Work Engagement Scale (UWES-9). The UWES-9 (Schaufeli, Arnold, Bakker, & Salanova, 2006) had nine items measured on a 7-point response scale, ranging from 0 (*never*) to 6 (*every day*). Example items are: “*I get carried away when I’m working*” and “*I am enthusiastic about my job.*” We calculated a single mean score for work engagement, where the higher the score, the higher the level of engagement. The scale was translated into Spanish according to the back-translation procedure (Brislin et al., 1993). This measure showed an internal consistency reliability of .90 in our sample.

Work Satisfaction. Work Satisfaction (Bravo, García, Peiró, & Prieto, 1993) is a tool adapted from the Minnesota Satisfaction Questionnaire (Weiss et al., 1965). The scale contained five items rated on a 5-point scale, ranging from 1 (*not satisfied*) to 5 (*extremely satisfied*). An example item is “*The amount of pay I receive for the work I do.*” This measure showed an internal consistency reliability of .63 in our sample. Alpha is a function of the number of items in a scale, and of item intercorrelation² (Cortina, 1993). The fact that the satisfaction scale has a lower Cronbach’s alpha is due to the small number of items, while the mean correlation among its items ($r = .26$) is comparable to that of the other scales.

General Health Questionnaire-12 (GHQ-12). We employed the 12-item short version of the GHQ (Goldberg, 1992). Its response scale ranged from 1 (much less than usual) to 4 (more than usual) for items 1 through 6, and from 1 (not at all) to 4 (much more than usual) for items 7 to 12. A higher mean score meant better general health. An example of an item is “*(Have you recently) been able to enjoy your normal day-to-day activities?*” Internal consistency reliability of this measure was .87 in our sample.

² We can see in the formula for the standardized Cronbach’s $\alpha = rk / [1 + (k - 1)r]$, where k is the number of items considered and r is the mean of the inter-item correlations, that the size of Cronbach’s alpha depends on both the number of items in the test and on the mean inter-item correlations.

Results

Descriptive data. The means and standard deviations for the subscales of the VEDAS are presented in Table 4. The average score for the sample was 4.09 for distress and 2.85 for eustress, and the standard deviation was 1.15 for the entire scale of distress and 1.06 for the scale of eustress. There was a significant effect for sex with female social service employees having a significantly higher appraisal of both personal accountability as distress ($t(289) = -2.18, p = .03$) and relationships as distress ($t(293) = -2.55, p = .011$) than male employees. No sex differences were found in the appraisals of Workload and Home-Work Balance as distress, and Workload, Personal Accountability, Relationships, and Home-Work balance as eustress.

Item analysis. We carried out a classic item analysis. Table 4 shows the item-subscale correlations and their descriptive statistics. We calculated the correlation of each item with the score of its respective VEDAS factor. The highest corrected item-subscale correlation was .75 for the Distress dimension of item 16 (“*Being undervalued*”), and the lowest was .29 for the Distress dimension of item 3 (“*Working at a level below my level of ability*”). Nineteen out of 20 items showed an item-subscale correlation greater than .30 in both the Distress and Eustress dimensions, indicating their general satisfactory contribution to the reliability of the scale.

Internal consistency reliability. Cronbach’s alpha coefficient for the composite VEDAS score for Distress was .91, and .89 for Eustress. This means that the VEDAS had a high degree of internal consistency reliability. Cronbach’s alpha coefficient for Relationships Eustress was .85; for Personal Accountability Eustress .75; for Home-Work Balance Eustress .75; and for Workload Eustress .70. For Relationships Distress it was .84; for Personal Accountability Distress .79; for Home-Work Balance

Distress .82; and for Workload Distress .75. All of the subscales reached the value of .70, the minimum Cronbach's alpha value for a new scale (Nunnally, 1978).

Criterion-Related Validity. Intercorrelations between the VEDAS factors and the global scores are displayed in Table 5. The correlations of the four subscales with their corresponding dimensions of distress and eustress were all high (all $ps < .001$). The highest correlation among the subscales was between distress-relationships and distress-workload ($r = .71$). Moreover, the composite score of distress and the composite score of eustress correlated positively with burnout and work engagement, respectively; the composite of distress correlated significantly and negatively with satisfaction and general psychological health; and the composite of the eustress scale correlated significantly and negatively with burnout. These results and their fundamental implications are explored in the discussion section.

Confirmatory factor analysis. The results obtained through exploratory factor analysis were then subjected to confirmatory factor analysis using Diagonally Weighted Least Squares (DWLS) for polychoric correlation matrices to estimate the model parameters for ordinal and non-normally distributed data (Jöreskog & Sörbom, 2006). The models tested for the appraisal of both distress and eustress included: (1) a single-factor structure and (2) a four-factor structure found in our analyses, allowing the four factors to correlate. We used the statistical programs PRELIS v 2.3 and LISREL v 8.8 (Jöreskog & Sörbom, 2006) to perform the analyses. With the aim of assessing the fit of the models, we examined the RMSEA (root mean square error approximation), CFI (comparative fit index), NNFI (non-normed fit index) and AGFI (adjusted goodness of fit index) goodness of fit statistics. The guidelines suggest cutoff values for the RMSEA of close to .07 (Steiger, 2007) to indicate acceptable fit of the model, and SRMR $\leq .08$,

NNFI ≥ 0.95 and CFI ≥ 0.95 are considered thresholds of a good model fit (Hu & Bentler, 1999).

Table 4.
Corrected Item-Subscale Correlations, Means and Standard Deviations of the 20 VEDAS Items

Items and name of each factor	Distress			Eustress		
	RCS	<i>M</i>	<i>SD</i>	RCS	<i>M</i>	<i>SD</i>
F1. Relationships ($\alpha = .84$ for distress and $\alpha = .85$ for eustress)						
10. Lack of social support from people at work.	.53	4.03	1.49	.61	2.62	1.41
14. Discrimination and favoritism	.66	4.33	1.59	.63	2.26	1.36
15. Feeling isolated	.71	4.36	1.68	.72	2.36	1.48
16. Being undervalued	.75	4.42	1.61	.73	2.40	1.50
18. Inadequate feedback about my own performance	.56	4.31	1.32	.59	2.78	1.52
F2. Home-Work Balance ($\alpha = .82$ for distress and $\alpha = .75$ for eustress)						
11. My partner's negative attitude towards my job and career	.55	3.63	2.01	.46	2.15	1.49
21. Absence of emotional support from others outside work	.69	3.60	1.70	.63	2.25	1.28
22. Demands that work makes on my private/social life	.56	3.68	1.60	.54	2.71	1.47
24. Lack of practical support from others outside work	.65	3.35	1.66	.53	2.41	1.39
33. Pursuing a career at the expense of home life	.60	4.33	1.68	.41	2.34	1.52
F3. Personal Accountability ($\alpha = .79$ for distress and $\alpha = .75$ for eustress)						
17. Having to take risks	.60	4.12	1.35	.46	4.32	1.24
27. Dealing with ambiguous or 'delicate' situations	.65	4.19	1.24	.66	3.97	1.31
28. Having to adopt a negative role (such as sacking someone).	.58	4.50	1.30	.51	3.36	1.48
31. Implications of mistakes you make.	.59	3.98	1.37	.57	3.98	1.36
F4. Workload ($\alpha = .75$ for distress, and $\alpha = .70$ for eustress)						
2. Taking my work home	.49	4.10	1.66	.43	2.25	1.41
3. Working at a level below my level of ability	.29	3.66	1.65	.39	2.18	1.50
6. Not being able to 'switch off' at home	.59	4.58	1.47	.50	2.13	1.42
8. Inadequate or poor quality of training/management development.	.40	4.09	1.47	.39	2.98	1.63
12. Having to work very long hours	.59	4.29	1.56	.48	2.47	1.46
13. Conflicting job tasks and demands in the role I play	.59	4.28	1.38	.42	3.37	1.44

Note. $n = 431$ (Study 2 with data obtained in T2), listwise. VEDAS = Valencia Eustress-Distress Appraisal Scale.

Table 5.

Descriptive Statistics and Correlations Between VEDAS Dimensions and Composite Scores, Burnout, Work Engagement, Satisfaction and General Health

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	M	SD
VEDAS																
1. Distress – Relationships	(.87; .84)	.48	.71	.65	-.13	.09	-.10	-.01	.87	-.03	.08	-.02	-.16	-.04	4.28	1.22
2. Distress Personal Accountability		(.80; .79)	.52	.48	-.15	.05	-.01	-.04	.74	-.05	.23	-.09	- ..061	-.21	4.20	1.04
3. Distress – Workload			(.70; .75)	.56	-.18	.07	-.16	-.12	.84	-.11	.21	-.10	-.16	-.09	4.16	1.04
4. Distress – Home-Work Balance				(.82; .82)	-.15	.06	-.03	.10	.84	.01	.13	-.02	-.09	-.15	3.71	1.31
5. Eustress – Relationships					(.82; .85)	.38	.65	.56	-.18	.84	-.04	.05	.00	-.03	2.51	1.16
6. Eustress – Personal Accountability						(.71; .75)	.38	.31	.08	.65	-.24	.19	.03	.11	3.92	1.02
7. Eustress – Workload							(.68; .70)	.61	-.09	.84	-.04	.13	.02	-.08	2.59	.98
8. Eustress – Home-Work Balance								(.76; .75)	-.01	.80	-.06	.13	.04	-.06	2.40	1.06
9. Distress – composite									(.91; .91)	-.04	.20	-.06	-.14	-.15	4.08	.95
10. Eustress – composite										(.88; .89)	-.12	.15	.04	-.01	2.87	.85
11. MBI-GS											(.84; .86)	-.57	-.26	-.62	1.92	.80
12. UWES												(.90; .90)	.25	.30	3.73	1.00
13. WS													(.60; .63)	.23	3.24	.60
14. GHQ-12														(.87; .87)	3.05	.43

Note. $n = 431$ (Study 2 with data obtained in T2). Correlations .13 and above are sig. at $p < .05$ and correlations .17 and above are sig. at $p < .001$. VEDAS = Valencia Eustress-Distress Appraisal Scale; MBI-GS = Maslach Burnout Inventory – General Survey; UWES = Utrecht Work Engagement Scale, GHQ = General Health Questionnaire., WS = Work Satisfaction, GHQ-12 = General Health Questionnaire-12 The numbers on the diagonal in brackets are Cronbach's alphas from study 1 ($n=603$) and study 2 ($n=431$)

As seen in Table 6, Model 1 (4 correlated factors) for the appraisal of both distress and eustress showed a good overall fit, with RMSEA lower than .07, SRMR lower than .08, and goodness-of-fit statistics (CFI, NNFI) satisfying the criterion of .95. The one-factor model of the appraisal of distress and eustress did not show a satisfactory fit, given that it did not satisfy the .08 criterion for RMSEA in the case of the distress and eustress scales or for SRMR in the case of the eustress scale. The compared models were significantly different: $\Delta \chi^2(6) = 311.18$, $p < .001$ for distress and $\Delta \chi^2(6) = 332.99$, $p < .001$ for eustress. Moreover, some criteria have been established to interpret fit differences between the models, based on modeling rationale criteria. Therefore, when comparing two models, the difference of ≥ 0.01 in NNFI and CFI values is considered an indication of practical differences between the models (Cheung & Rensvold, 2002; Widaman, 1985).

Chen (2007) suggests that when the RMSEA increases by .015 or more, the two models can be considered significantly different. In our case, the difference in the RMSEA values between the 1-factor and 4-factor models is equal to .015, and the difference in the CFI and NNFI values is .01 for both indices, which confirms the existence of a significant difference between the 1-factor and 4-factor models, with the four-factor model obtaining a better fit. The standardized parameter estimates of Confirmatory Factor Analysis of distress and eustress scales ranged from .67 to .86 ($M = .77$) for Relationships Distress, from .70 to .79 ($M = .75$) for Personal Accountability Distress, from .68 to .83 ($M = .76$) for Home-Work Balance Distress, from .45 to .78 ($M = .64$) for Workload Distress, from .72 to .83 ($M = .79$) for Relationships Eustress, from .61 to .80 ($M = .70$) for Personal Accountability Eustress, from .57 to .77 ($M = .68$) for Home-Work Balance Eustress, and from .48 to .66 ($M = .58$) for Workload Eustress.

For the total scores of the VEDAS, they ranged from .45 to .86 ($M = .72$) in case of distress, and from .48 to .83 ($M = .67$) in case of eustress scale.

Table 6
Fit indices for measurement models for distress and eustress

Model	χ^2	df	RMSEA	CFI	NNFI	SRMR
Distress						
4-factor	385.44 ($p < 0.0$)	164	.067 (.059 ; .077)	.98	.96	.059
1-factor	696.62 ($p < 0.0$)	170	.103 (.095 ; .111)	.95	.94	.082
Eustress						
4-factor	363.34 ($p < 0.0$)	164	.066 (0.057 ; 0.075)	.97	.97	.075
1-factor	687.33 ($p < 0.0$)	170	.104 (0.096 ; 0.113)	.92	.91	.101

Note. $n = 431$ (Study 2 with data obtained in T2); The fits of the two compared 1-factor and 4-factor models are significantly different both for distress and for eustress. For distress, $\Delta \chi^2(6) = 311.18$, $p < .001$, ΔNNFI and $\Delta \text{CFI} \geq 0.01$, $\Delta \text{RMSEA} > .015$; For eustress, $\Delta \chi^2(6) = 332.99$, $p < .001$, ΔNNFI and $\Delta \text{CFI} \geq 0.01$, $\Delta \text{RMSEA} > .015$.

Distress and eustress appraisal stability. We calculated the temporal stability of the distress and eustress appraisal factors for the 431 participants who filled out the questionnaires in both Study 1 (T1) and Study 2 (T2). The 6-month test–retest correlation coefficients (Pearson’s r) of the VEDAS and its factors were between .43 and .50 for the distress factors and between .37 and .39 for the eustress factors (see Table 7), suggesting that the factors have moderate temporal stability.

The results suggest that the components of the appraisal of distress and eustress remained relatively stable over the 6-month period, which supports the conceptualization of the eustress-distress appraisal constructs as stable phenomena, although there was some change.

Table 7
Descriptives and correlations for the VEDAS dimensions in time 1 (T1) and time 2 (T2) (Study 2).

	Factor	Distress			Eustress		
		Pearson <i>r</i>	<i>M</i>	<i>SD</i>	Pearson <i>r</i>	<i>M</i>	<i>SD</i>
Pair 1	Relationships T1 -		4.35	1.27		2.53	1.23
	Relationships T2	.45**	4.28	1.22	.37**	2.51	1.16
Pair 2	Personal Accountability T1 -		4.32	1.08		4.09	1.08
	Personal Accountability T2	.50**	4.20	1.04	.46**	3.92	1.02
Pair 3	Workload T1 -		4.22	1.03		2.64	.99
	Workload T2	.46**	4.16	1.04	.39**	2.59	.98
Pair 4	Home-Work Balance T1 -		3.64	1.35		2.47	1.13
	Home-Work Balance T2	.43**	3.71	1.31	.38**	2.40	1.06

Note. $n = 431$ (Study 2 with data obtained in T1 and T2). ** $p < .01$

General Discussion

We developed a new tool to assess the possible simultaneous appraisal of eustress and distress. It is a compact tool whose items are generic enough to be used across a variety of professions. The two studies in the present paper are the first to develop and examine the psychometric properties of the VEDAS aimed at assessing both distress and eustress appraisal. The results of these two studies led us to conclude that, on the basis of its strong psychometric properties, the VEDAS is an important and valuable tool for practice and theory. In addition, the reductionist approach, based on item-item and item-subscale correlations as well as factor loadings, has demonstrated to be appropriate. The four factors explained 49% of the total variance for distress and 45% for eustress. We have to underline that the factors found do not have the same weight, Relationships being the dominant dimension and Personal Accountability, Home-Work Balance, and Workload being secondary, but not redundant, factors. In

Study 2, the confirmatory factor analysis supported the validity of relationships, personal accountability, workload, and home-work balance in both the distress and eustress dimensions. The VEDAS distress and eustress scales satisfy the criteria for essential unidimensionality, given that the one-factor solutions has been rejected, the Eigenvalues and Scree plot suggested the existence of four factors, but it was evident that there was one dominating factor (Slocum & Zumbo, 2011). Essential unidimensionality is common in social and health science (Slocum et al., 2009) and it means that the scale is inherently tapping a dominant and secondary dimensions. In practice, it means that a sufficient condition is met to use with confidence the VEDAS to measure a global score on the distress and eustress scales (Slocum & Zumbo, 2011), while at the same time allowing users of the scale to consider that distress and eustress appraisal arise from different sources, represented by several dimensions, that have different weight on the distress and eustress scales.

The internal consistency reliability of the VEDAS is considered highly satisfactory. The alpha coefficients, which range from .70 to .85 for the eustress and distress factors, were comparable to or higher than those found in the PMI (Williams & Cooper, 1998). Further, it is worth mentioning that the correlations between the factors pertaining to the appraisal of distress scale with those pertaining to the appraisal of eustress scale were low (the strongest correlation coefficient was equal to $-.15$). In fact, ten out of 16 correlations between the factors of distress and the factors of eustress were non-significant. Moreover, the correlation between the composite scales was also low ($r = -.04$). Therefore, we can conclude that the subscales of the appraisal of distress and eustress are fairly independent. This is consistent with Selye (1956), who understands distress and eustress to be distinct phenomena, and with similar findings by Boswell et

al. (2004) and Cavanaugh et al. (2000), who showed distress and eustress to be independent.

The results of Study 2 also revealed convergent validity of the VEDAS scores. There were significant correlations between the factors of the distress and eustress appraisal scale scores and several other theoretically associated variables (burnout, work engagement, satisfaction, and general psychological health). We found that the composite score of the appraisal of distress positively correlated with burnout, the composite score of the appraisal of eustress negatively correlated with burnout, and the composite score of the appraisal of eustress positively correlated with work engagement, which is consistent with Schaufeli and Van Rhenen (2006) and Maier, Waldstein, and Synowski' (2003) results.

Limitations

The results of this study require cautious interpretation due to some limitations. First, the results of the Pearson correlation coefficients between T1 and T2 in Study 2 showed moderate stability over time for both the appraisal of distress and appraisal of eustress scales. Folkman, Lazarus, Gruen, and DeLongis (1986) explained the generally low stability of the primary appraisals as reflecting the sensitivity of these variables to conditions in the environment. Long, Kahn, and Schutz (1992) justify low-to-moderate stability of appraisals as a function of two components of appraisal: the varying component of emotional reactions and a more stable component of personal characteristics. Although some researchers have shown that appraisals are more variable than stable over time (e.g., Folkman et al., 1986; Long et al., 1992; Nelson & Cohen, 1983), further research is needed to clarify the theoretical rationale for stress appraisal stability. Also, a 6-month time lag may be too long for a test-retest to capture the

fluctuations of in persons' appraisals and therefore, may be a reason for lower test-retest reliability than in a shorter time-lag between data collection points.

Second, a minor issue in our study was the case of a few items with lower loadings and cross-loadings in the exploratory factorial analysis concerning the secondary factors. However, the cross-loadings were kept to a minimum and the remaining analyses (Confirmatory Factor Analysis, Cronbach's alpha coefficients, and criterion validity) supported the loadings of the items on their corresponding factors.

Third, the satisfaction measure showed an internal consistency reliability of .63. However, the mean correlation among its items is comparable to that of the other measures. Internal consistency can be impacted by many other factors beyond the actual content of the items and responses of the candidates and a lower Cronbach alpha can be due to a small number of items on the satisfaction scale (e.g., Cortina, 1993; Lord & Novick, 1968), given that alpha can be written as a function of the number of test items and the average inter-correlation among the items.

Finally, the VEDAS offers a set of items generic enough for participants of varying professions to utilize. However, in the present study we have administered it to a female-dominated sample (although this sex composition has been reported to be representative for the sector studied) of Spanish social care professionals (represented by persons from different professions, such as psychologists, educators, social workers, administrative workers, educational psychologists and sociologists), which makes it is necessary for future research to replicate the study in other professions to ascertain whether the items work well and the results can be repeated.

Conclusions

To summarize, the results of our two studies support the idea that the VEDAS could be a particularly effective instrument in the evaluation of the appraisal of distress and eustress. It provides a commensurable measure of both eustress and distress appraisal, which makes it possible to study their coexistence in the work context. A closer look at stress, where we can discern its positive and negative appraisal, makes it possible to find answers to new research questions that address not negative outcomes of distress, but also positive outcomes of eustress.

Finding positive outcomes of the appraisal of eustress would have implications for practice, such as putting an emphasis on human virtues and teaching employees how to appraise stressful work events in a more positive way. The newly developed VEDAS scale, which provides information about eustress and distress appraisal from the same stressor, can improve our knowledge about individuals' stress experiences by ascertaining empirically that a given situation can really be appraised both as a threat and as a challenge. The efforts to simultaneously measure eustress and distress make it possible to embrace certain complexity of the real life where often experiences of both are present, coexisting in certain situations and in particular conditions. For example, challenge appraisals can be accompanied by a certain degree of distress appraisal. However, it is also possible that a high level of distress hampers the perception of some particular situations as challenge.

It is important to analyze demanding experiences in life from both perspectives to see when it is reasonable to accept challenges and when it may entail costs such as strong distress. In this way, we can identify not only positive but also negative effects of a given situation, and weight its advantages and disadvantages. Taking into account

these issues we consider the main contribution of the VEDAS scale. Highlighting that distress appraisal accompanies eustress appraisal would be of special relevance, because it would show that we have to be careful about stimulating an excessively positive appraisal of stress, a popular practice in some organizations, without weighing its negative implications. This excessively positive appraisal of stress can be harmful because it would not encourage persons to employ preventive coping strategies that could help them to reduce the negative outcomes of distress appraisal that are often present simultaneously when facing demanding situations. Also, the VEDAS scale can help us to provide more comprehensive responses to the following questions: How can stressful situations be dealt with? The VEDAS can provide us with empirical evidence on whether it is always recommended to stimulate the positive appraisal of demanding situations, as it operationalizes the positive appraisal and allows checking for different outcomes of the positive and negative appraisal of stressful events related to different areas. It is important to be cautious when encouraging the appraisal of challenges, while at the same time being aware that under certain conditions these challenges may become threatening. Finally, the VEDAS makes possible a better protection of employees from work stress; its application in the future research can reveal what stressful situations are appraised as the greatest sources of distress and eustress.

Furthermore, not only does the construction process of the VEDAS provide a robust scale to evaluate distress and eustress appraisal, but it also gives new information about the construct of stress appraisal in which relationships at work turn out to be the most important dimension both of distress and eustress appraisal. By identifying key demanding situations, stress management trainings could become more effective as managers would be able to concentrate on the most powerful sources of distress and eustress and design work in such a way that it triggers positive outcomes. All this

information may be useful in deciding at what point enthusiasm should be tempered by prudence when undertaking challenges that may also involve risks.

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Appendix 1. VEDAS items in Spanish.

Prácticamente cualquier cosa puede ser una fuente potencial de presión para alguien en un momento dado, y las personas perciben las fuentes potenciales de presión de modo diferente. La persona que dice que está “en un momento de tremenda presión” generalmente quiere decir que tiene demasiadas cosas que hacer. Pero esto es sólo una parte de la situación. Las mismas situaciones pueden suponer, para las distintas personas, una oportunidad o un reto que les ayude a crecer, desarrollarse o mejorar, ya sea personalmente o en su trabajo. Las afirmaciones que siguen son fuentes potenciales de presión o de reto. Te pedimos que las califiques según el **grado de presión** y el **grado de reto** que cada una de ellas representa para ti. Por favor, contesta utilizando la siguiente escala:

	Con toda evidencia NO lo es	Con bastante evidencia NO lo es	Con alguna evidencia NO lo es	Con alguna evidencia LO ES	Con bastante evidencia LO ES	Con toda evidencia LO ES
PRESIÓN	1	2	3	4	5	6
OPORTUNIDAD / RETO	1	2	3	4	5	6

1	Llevarme el trabajo a casa	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
2	Estar trabajando a un nivel inferior a mis capacidades	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
3	No ser capaz de “desconectar” sobre temas de trabajo en casa	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
4	La formación inadecuada para el trabajo directivo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
5	La falta de apoyo social de la gente del trabajo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
6	La actitud negativa de mi pareja hacia mi puesto de trabajo y mi carrera profesional	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
7	Tener que trabajar muchas horas al día	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
8	El conflicto entre distintas tareas y demandas de mi trabajo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
9	Las discriminaciones y favoritismos más o menos explícitos	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
10	Sentirme aislado/a	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
11	Ser infravalorado/a	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
12	Tener que asumir riesgos	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
13	La información inadecuada sobre cómo estoy haciendo mi trabajo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
14	La falta de apoyo emocional de las personas de fuera del trabajo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
15	Las demandas que el trabajo plantea en mi vida privada/social	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
16	La falta de ayuda de las personas de fuera del trabajo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
17	Tener que afrontar situaciones ambiguas o “delicadas”	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
18	Tener que adoptar un papel incómodo (ej., tomar medidas disciplinarias rigurosas)	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
19	Tener que afrontar las consecuencias de mis propios errores	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
20	Tener que desarrollar mi carrera a costa de la vida familiar	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6

ARTICLE 3.

How to construct more effective questionnaires: Applying Rasch to the VEDAS data

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Abstract

The purpose of the present study is to show the benefits of applying Rasch Analysis to develop more effective and more accurate questionnaires in I/O psychology and it provides the researchers with guidelines on how to apply RA to improve their methods. As an example, the 20-item Valencia Eustress-Distress Appraisal scale is used. The sample was composed of 603 Spanish social service professionals. The results of the item calibration show a graduation of types of stressful situations that are appraised as distress and/or as eustress, which is analyzed in light of previous theoretical findings. The analyses show that more items are needed to cover some gaps in the stress dimensions, while some redundant items might be deleted. Respondents have difficulty in distinguishing between six response-scale categories; combining these categories into three can eliminate this problem and increase the sensitivity in measuring eustress and distress appraisal. The analysis of dimensionality is contrasted with previous findings. Finally, the VEDAS adequately meets measurement criteria of invariance. The study provides an illustration of the benefits of using RA in the field of I/O psychology evaluation, which is up-to-date uncommon. The application of the RA to a measure developed in work and organizational area is discussed.

Keywords: Rasch Analysis, Rating Scale Modeling, Scale development, VEDAS

Introduction

The situation of questionnaire-based measurement in the I/O psychology is comparable to the times when in physics it was only possible to tell whether something is hotter or colder, before the Celsius or Fahrenheit scales were introduced. Unfortunately, most I/O instruments are not developed using a guideline measurement framework. Moreover, ordinal-level data are routinely analyzed as if these data are equal interval, thereby violating requirements of parametric tests, which has a profound impact on the results of some analyses.

In the meantime, the advances in technology and informatics have helped social sciences to have access to such revolutionary techniques as magnetic resonance, evoked potentials, and hormone analyses, among others. These methods provide us with “hard” bio data and serve for giving much more credible results. Thanks to this progress, some I/O psychology research has benefited from sometimes very expensive projects based on simulations, use of wireless sensors, hormone sampling, etc., that provide researchers with “hard” indicators.

However, some psychological phenomena in I/O psychology are unfeasible to be measured without questionnaires. That is often why these advanced “hard”-data methods are used together with questionnaires (developed according to the conventional classic test theory) that present flaws habitually overlooked that decrease the reliability of the results. Also, these novel methods are simply expensive which makes I/O psychologists stick to more affordable instruments like questionnaires. Bearing this in mind, we have no choice; we will have to keep on using questionnaire methods, however, the time has come to improve our scales.

Facing a similar problem, other disciplines have already implemented some improvements in the measurement precision. In medicine, the common use of Rasch Modeling to increase the capability of making diagnostically-relevant distinctions among patients' health problems has been documented from the early 90s. In education, the world's most important high stakes language tests (e.g. IELTS, TOEFL, Cambridge ESOL), subject the examiners to rigorous standardization and certification procedures with the use of Rasch measurement, as it allows for a much more rigorous assessment of individuals than the common classic test theory-based tests.

During the last years the topic of how to make I/O psychology contributions more visible in the world is a leading theme of the vast majority of the I/O congresses, roundtables and sessions world-wide. The improvement of our measurement methods is an opportunity for us to improve our image, quality of our research and to produce leading edge science. If I/O psychology is to gain credibility in the eyes of policy makers, practitioners, and a broader environment, research practice must tighten its connection to sound theory through rigorous measures.

The purpose of this paper is to provide I/O psychologists with a detailed guidance on how to construct more effective and rigorous questionnaires that provide strong explanatory and predictive power. We aim at explaining (a) why Rasch measurement theory and practice should be used by I/O psychologists, (b) how Rasch measurement theory and practice can be used at a variety of levels, and (c) implications of a Rasch perspectives and tools for I/O psychology evaluation efforts. To frame a discussion, we collected a data with Valencia Eustress Distress Appraisal Scale (VEDAS, Rodríguez, Kozusznik, & Peiró, in press). The Rasch theory and Rasch analyses presented herein, however, can be applied to many scale instruments in I/O psychology.

Stress Measurement

Given the complexity of the phenomenon of stress, there are many different methods to measure its appraisal. There are scales which assess only the appraisal of distress, i.e. *Pressure Management Indicator* (PMI) (Williams & Cooper, 1998). Also, some questionnaires measure the appraisal of eustress (O'Sullivan, 2011). Others provide two different sets of items that represent situations that can be sources of distress or eustress at work in order to rank their appraisal, i.e. *Stress Appraisal Measure*, (SAM) (Peacock & Wong, 1990). Finally, some tests, such as the *Index of Sources of Stress in Nursing students* (ISSN) (Gibbons, Dempster, & Moutray, 2009), evaluate the appraisal of distress and eustress using the same statements as sources of “hassles” and “uplifts”, in a specific profession of nursing. To the best of our knowledge, to date, the only measure that focuses on both eustress and distress appraisal in different occupations is the Valencia Eustress-Distress Appraisal Scale (VEDAS, Rodríguez et al., in press).

The VEDAS is a questionnaire which provides total scores for distress and eustress appraisals. Both distress and eustress appraisal scales are essentially unidimensional and tap four related subdimensions: relationships (dominant dimension), personal accountability, home-work balance, and workload (secondary dimensions). The VEDAS is composed of 20 items representing demanding situations that can be appraised as both distress and as eustress in different occupations, and it presents commensurable data for both appraisal types. This feature makes it possible to measure the possible coexistence of eustress and distress, emphasizing the positive side of stress in addition to its negative side. The VEDAS scales have good psychometric properties (Cronbach's alpha coefficients for the composite VEDAS scores were .91 for distress and .89 for eustress) and can be used in different professional groups (Rodríguez et al.,

in press). Examples of the items are “*Being undervalued*” for relationships, “*Implications of mistakes you make*” for personal accountability, “*My partner’s negative attitude towards my job and career*” for home-work balance, and “*Taking my work home*” for workload. Every item can be rated both as threatening and as challenging/opportunity using two response scales: one for threat and the other for challenge/opportunity. Challenge/opportunity is defined for the respondents as an opportunity for personal growth and to develop one’s capabilities. The VEDAS has a 6-point Likert scale, ranging from 1 (clearly, it is not a source of threat) to 6 (clearly, it is a source of threat) for distress appraisal, and in a similar way from 1 (clearly, it is not a source of challenge/opportunity) to 6 (clearly, it is a source of challenge/opportunity) for eustress appraisal.

VEDAS can be considered a suitable example of a typical questionnaire used in I/O psychology, given that it uses a Likert scale as the vast majority of the questionnaires in this area do. Moreover, VEDAS is a measure of the phenomenon of occupational stress, an important area of interest of the I/O psychology, it is rooted in the transactional approach (Lazarus & Folkman, 1984) which has a long tradition in the study of stress, and it follows the recent advances in the study of stress by incorporating a positive perspective to stress appraisal and the traditional negative perspective (e.g. (Kozusznik, Rodríguez, & Peiró, 2012; Podsakoff, LePine, & LePine, 2007)).

Until now, the VEDAS scales have been created with the use of the most advanced methods in the CTT, such as the Confirmatory Factor Analysis (CFA), have been analyzed from the CTT approximation, and turned out to be a robust measure to assess eustress and distress appraisal. However, the CTT methods have limitations in quantification of psychological attributes, whereas RA provides the possibility of testing (instead of assuming) measurement objectivity as it respects the rules for making

measurements. As a consequence, RA allows to empirically determine whether interval scales have been constructed or not (Karabatsos, 2001; Luce & Tukey, 1964; Perline, Wright, & Wainer, 1979).

Although CTT was developed in the beginning of the 20th century, and then is based on very simple assumptions, like the precision with which we measure a particular subject is the same for all other subjects, or very simple statistics, like means, variances, and covariances (or its standard counterpart: correlations), it is still currently the most frequently applied approximation in constructing and validating tests. Certainly, it makes few assumptions, which makes it flexible and applicable virtually to the 100% of cases. And without any doubt, several robust psychological tests have been constructed within the CTT approximation. CTT has contributed to the area of test development by recognizing the presence of errors in measurement and estimating them to obtain the true score, by discovering the concept of correlation and showing how to index it (Galton, 1961), by applying it in the context later called CTT and showing how to correct it (Spearman, 1904; see also Traub, 1997), as well as by offering the reliability coefficient and Factor Analysis. Despite its contributions, CTT has also some shortcomings. First, it obtains the total score by summing up the answers to all the items in the scale, irrespective of the ordinal nature of these answers. Second, in the CTT the items are not calibrated. Third, the decision for the number of response categories in a test often depends on solely theoretical reasoning. Fourth, the scores obtained in the test are always sample-dependent. Finally, CTT does not offer us a true-interval scale.

These characteristics of the CTT undermine its validity as a method for test construction and development. Nevertheless, it does not mean that we cannot search for alternatives, that are in fact already in use by other areas (e.g. medicine and education)

and that solve the problems we mentioned. The alternative solution, such as RA, can be stricter but certainly it can bring many benefits.

Advantages of Rasch Analysis.

The RA explains that the likelihood of a given respondent endorsing an item depends on the relationship between the level of characteristic of a person and the level of the characteristic that is demanded by the item¹. It means that the probability that a person will endorse an item on the VEDAS distress scale would depend on the relationship between the person's level of distress appraisal and the level of distress expressed by the item. For example, there will be high probability that a person who normally perceives events at work as distress will agree that an item that represents a situation generally considered to be a source of threat is also a threat form him/her. The Rasch model relaxes the deterministic Guttman scaling (Guttman, 1974) that expects a strict hierarchical ordering of items, to sustain instead that if a harder item is affirmed, then there is a high probability that easier tasks will also be affirmed (Tennant & Conaghan, 2007). The response patterns achieved from a set of items are tested against this expectation (Tennant & Conaghan, 2007). When these response patterns fit the model, a set of calibrated items and of measured subjects are obtained, both placed along the same continuum in the same metrics. Moreover, the item difficulties as well as the subjects' abilities are given on an interval scale, then allowing for the proper use of parametric test on these measures. In addition, item calibration shows whether the items spread along the dimension in the expected way, and how far they are from each other. In the VEDAS scales that means whether the stressful situations are most and less

¹The foundation of present work stems from the dichotomous Rasch model, which considers two possibilities of an answer: 1 (endorse a statement) and 0 (fail to endorse a statement). Therefore, the RA defines the conditional probability of obtaining a 1 score as a continuous function of person's ability (A) and item's difficulty (D), and can be represented by the following formula: $P(X_j = 1 | \theta) = (A/D)/(1+(A/D))$. In contrast, CTT does not allow for differencing between person ability and item's difficulty and makes it impossible to calculate this probability.

likely to be appraised as eustress or/and distress as expected, and how far they are. Through the item calibration process, we obtain information about the independent error estimates for each item, about the gaps in the items' continuum and about those items that are redundant. Besides this, RA offers a possibility of contrasting whether the response scale is working appropriately for the test, instead of just assuming it theoretically. Finally, RA tests for invariance of item calibration across samples.

There is sufficient evidence that RA can be used as a tool to improve tests constructed under CTT theory. Then analyzing the VEDAS using RA would add valuable extra information about the content of the scale.

Research Questions

To summarize, our purpose is to show how to apply RA to a conventional Likert-type scale, which in turn is the most frequently type of scale used in I/O psychology, so that this study could serve as a guide for other I/O researchers. To this end, we used the VEDAS scale. After showing how to test the adequacy of the Rasch model, we will emphasize some of its most interesting advantages, which consist of the capacity of answering the following questions:

- Q1: Should the scale fit the RA, are all items functioning well and contributing to measurement precision of the VEDAS?
- Q2: Is the rating scale for the VEDAS working adequately?
- Q3: Does items' calibration match with our expectations?
- Q4: Does the scale offer subjects' measures precise enough?
- Q5: Is the test targeted properly for the sample?
- Q6: Can we improve the sensibility of the test by adding items to fill the gaps and by deleting the redundant ones?

Q7: Is there parameter invariance?

Q8: Does the VEDAS have psychometric subdimensions?

Method

Participants and Procedure

The questionnaire was completed by a sample of 603 employees (109 male, 484 female; 10 participants failed to specify their sex) of Public Social Services in the Valencian Community. The sample was composed by such professionals as psychologists, educators, social workers, administrative workers, educational psychologists, and sociologists. All participants were Spanish, predominantly from a middle-class socioeconomic background (INE, 2010), and ranged in age from 20 to 70 years ($M = 37.52$, $SD = 8.62$). The sex composition of our convenience sample (82% are women) reflects the real sex distribution in the social services sector in the region studied. According to regional statistics, women constitute 87.9% of social services employees in the Valencian Community (IVE, 2010). Once the social service centers had been contacted by phone and agreed to participate, a Spanish version of a self-completion questionnaire was administered by the members of the research team to the employees who voluntarily decided to participate in the study. The majority of the questionnaires were filled out and gathered on site. However, when answering the questionnaires on-site was impossible, the questionnaires were handed to the participants and collected directly from them by the members of the research team about four days later. The anonymity of the data was assured. Eight hundred subjects were invited to participate and the response rate was 75%. This high rate is due to the direct contact data collection procedure used.

Analyses

Rasch analysis is a process of testing whether the data from an ordinal scale satisfies the requirements for constructing interval scale measurement. The Rasch *Rating Scale Model* (RSM) (Andrich, 1978) is the adequate version of Rasch analysis for our data, since it analyzes Likert-type scales like VEDAS (Andrich, 1978). We tested the fit of our data to this model using WINSTEPS (Linacre, 2006). The data fits the model whether the observed pattern of responses does not deviate from that expected by the model. When it is the case, item's locations (i.e. the intensity level of each item compared with other items in the scale), and person abilities (i.e. the ability level of each person in relation to other persons in the sample) are estimated; and a transformation of ordinal into scaling is achieved (Gorton et al., 2011; van der Velde, Beaton, Hogg-Johnston, Hurwitz, & Tennant, 2009).

In the present work, person's agreeability means level of distress/eustress appraisal of this person (the higher level of distress/eustress appraisal a person have, the more agreeable s/he is) while the high/low item's endorsability is the degree to which items are easy/difficult to be appraised as distress/eustress. The procedure of estimating agreeability is called measurement (of subjects) while the procedure of estimating endorsability is called calibration (of items). The calibration of the items and the measure of the subjects allow corroborating the targeting of the test through examining the person-item map, which gives information about the utility of the test, about which group of persons it can measure best, and how it should be improved to measure effectively other groups.

A series of overall and individual item and person fit statistics indicate if data fit the model. Although the logic behind the procedure is the same, those statistics vary

depending on the software employed. There exist different types of software designed for Rasch Analysis, such as WINSTEPS (Linacre, 2006), RUMM (Andrich, Lyne, Sheridan, & Luo, 2003) or ConQuest (Wu, Adams, & Wilson, 1997). Provided the software is WINSTEPS, the results we can obtain carrying out RA are as described below. If any other program is used, there are other sources that can be consulted (e.g. Tennant & Conaghan, 2007).

Item analyses.

To determine the fit of each individual item on the VEDAS, we examined the model information-weighted fit (Infit) and the outlier-sensitive fit (Outfit) mean square statistics (Linacre & Wright, 1999). Both indexes summarize the standardized residuals obtained in comparing the observed versus expected responses for each item across all the subjects. Infit is sensitive to unexpected response patterns when the subject is approximately the same ability as the item's difficulty. Outfit is sensitive to unexpected response patterns when the subject is more able or less able than that item's difficulty. We designated items as fitting well if these statistics were between 0.5 and 1.50 (Linacre & Wright, 1999). Values greater than 2 are of greatest concern (Linacre & Wright, 1999).

Summary item and person fit statistics (infit and outfit).

Summary item and person fit statistics were also examined. Their interpretation parallels that of the individual indexes.

Response scale options analyses.

The two criteria for an adequately functioning response scale are the adequate order and the adequate distance of the response options. When response scale is

functioning properly, an increase in response option reflects an increase in the underlying dimension. The classical item analysis approaches this requirement by examining each item point-measure correlation. Values above .6 indicate that high ratings on the item match high person measures, as expected. However, Rating Scale Model allows for a more formal test of this assumption. In fact, it permits testing if each response option systematically takes turns showing the highest probability of endorsement across the whole range of the trait being measured (Pallant & Tennant, 2007). To test whether the VEDAS 6-point response scale is functioning in that way, we should analyze the transition points (or thresholds) between each two adjacent response options (e.g. *Definitely is NOT a source of threat* should be endorsed by subjects with the lowest level of distress appraisal, subjects endorsing *Generally is NOT a source of threat* should have medium-low level of distress appraisal, and subjects endorsing *Generally IS a source of threat* should be those who appraise most distress in the sample). Using RA we can also analyze whether the response options are appropriately distanced from one another, the distance of at least 1.4 logits apart and maximum of 5 logits being recommended (Linacre, 1999) to be able to measure meaningful progression along the variable, otherwise “categories that overlap too much with adjacent categories are typically not helpful in defining a distinct point along the variable” (Elliott et al., 2006, p. 362).

Once the issues of fit are resolved, it is necessary to move to the evaluation of the accuracy of measures. This is done through a different set of overall and individual statistics and some maps. Overall statistics inform about the overall reliability of the person’s measures and item’s locations provided by the model. Individual statistics inform about the individual precision of each person measure and each item location

provided by the model. The maps help in capturing all of this information in a single shot. These statistics and maps are presented next.

Person separation reliability index and item separation reliability index.

Reliability indicates the replicability of a measure. In the classical context it applies only to the replicability of subjects' placement along the stress continuum (either distress or eustress). In Rasch contexts, this concept applies both to subjects and items and it allows checking the replicability of the placement of items along the same stress continuum. According to the guidelines, Item Separation reliability index and Person Separation reliability index² are acceptable from values of 2.0 or greater (Wright & Masters, 1982).

Item calibration and subject measurement.

Person–item maps are studied to identify item hierarchy, measurement gaps, and ceiling and floor effects. Also, precision of person ability estimations is analyzed using the standard error of estimation. In case of the VEDAS, for each possible raw score, the standard error is computed based on the actual scores of the 603 persons for the 20 items. In order to interpret the size of standard errors, a standard error of 0.32 corresponds approximately to a traditional reliability coefficient of 0.90, and a standard error 0.22 corresponds to 0.95 (Linacre & Wright, 1999).

Targeting.

Person-Item maps also show the matching between the mean of the person ability distribution and the mean of the item difficulty distribution. For a well-targeted

² Separation reliability index “is the ratio of the square root of the variance explained by the measurement model (‘adjusted person variability’) to that of the unexplained variance or measurement error, including error from model misfit (‘real root mean square error’), that is, the signal-to-noise ratio”(Elliott et al., 2006, p.362).

measure, the persons' and the items' distribution means have to be close and the distributions have to be similar. In case of a well-targeted not too easy, not too hard test the mean locations of the persons' abilities and items should be both around the value of zero (Pallant & Tennant, 2007).

Finally, once fit and accuracy issues are clarified, it is time to pay attention to the requirement of unidimensionality of the scale, and to the propriety of invariance of estimations.

Unidimensionality.

Unidimensionality is one of the most important assumptions of the unidimensional Rasch analysis models. This assumption is tested through a principal component analysis of the residuals. This analysis can detect multidimensionality by identifying any meaningful pattern in the residuals produced after fitting the data to the model. When unidimensionality does not hold, these residuals are related enough to give rise to a secondary component or sub-dimension. It is accepted that a component explaining more than 2 units of unexplained variance may be indicating the existence of such a secondary subdimension (Linacre & Wright, 1999). When this is the case, a) a careful analysis of the content of the items in the extremes of this component would clarify the meaning of such a secondary subdimension, and b) the comparison of the scores on these two extreme sets of items across subjects would tell us if the subdimension is a matter for concern.

Invariance in items' calibration.

Test invariance gives us additional information on the fit of the data to the model. Invariance is a direct consequence of fit, and one of the most outstanding

advantages when it occurs. This information on whether the calibration of the items is invariant across groups can be obtained in RA through splitting the sample, estimating item parameters separately, and then comparing them. The sample can be splitted randomly, by gender or by other variable of interest. If the calibrations of the items are invariant across subsamples, then the “differential test functioning” is rejected.

Results

Summary Item and Person Fit Statistics (Infit and Outfit)

The summary item infit statistics were in the acceptable range of fit for both distress and eustress scales (1.00 and 1.02, respectively), as well as the outfit values for these scales (1.06 and 1.04, respectively).

Item Analyses

From the 20-item VEDAS, using the model information-weighted fit (Infit) and the outlier-sensitive fit (Outfit) mean square statistics, we identified two items in the distress scale (item 1 and item 2) and one item in the eustress scale (item 2) that showed a significant overall misfit with the measure, as they did not fell into the acceptable range of 0.5 – 1.50 (Linacre & Wright, 1999). Therefore, they were suggested for elimination from the VEDAS.

Response Scale Options Analyses

The response categories for the 20 items of the VEDAS did not follow the expected progression of rated levels as they did not advanced monotonically from “with all evidence it is not a source of threat/challenge” to “with all evidence it is a source of threat/challenge”, as Table 1 and Figure 1 indicate. Specifically, as the step threshold

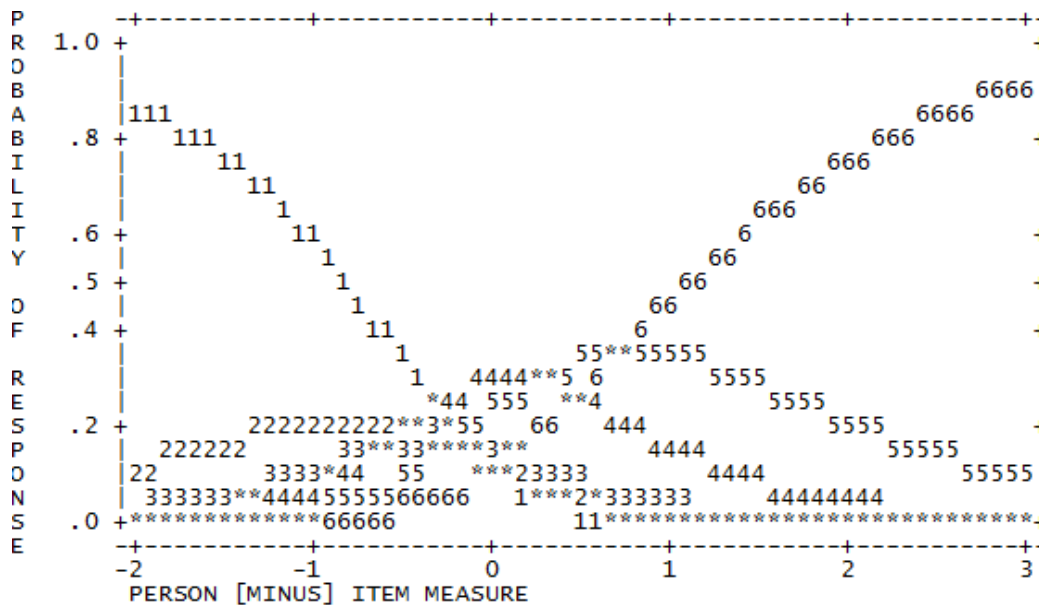
estimates in this table show, the two adjacent Categories 3 (*Generally is NOT a source of [pressure/opportunity-challenge]*) and 4 (*Generally IS a source of [pressure/opportunity-challenge]*) in case of both distress and eustress scales did not follow the order.

Table 1.
Summary of the VEDAS Distress original Rating Scale Category Functioning

Category label	Observed count	In-fit mean square	Out-fit mean square	Step threshold	Step standard error
1	1341	1.13	1.29	None	
2	900	1.05	1.09	.04	.03
3	1180	.89	.94	-.37	.03
4	2428	.95	.97	-.60	.02
5	2834	.92	.86	.22	.02
6	2882	.99	1.01	.71	.02

Note. The same tendency appears in case of the eustress scale. For the sake of conciseness, we present here only the results for the distress scale. The detailed results for the eustress scale can be found in the Appendix 1.

Figure 1. *Analysis of the VEDAS Distress six-point rating scale categories.*



Note. The same tendency appears in case of the eustress scale. For the sake of conciseness, we present here only the results for the distress scale. The graphical representation of the analysis of the VEDAS eustress six-point rating scale categories can be found in the Appendix 1. Probability of response categories as a function of adjusted person's distress. Adjusted Distress Appraisal is person's distress appraisal minus item difficulty (both expressed as logit scores); Probability of Category is the likelihood of endorsing a given rating scale category at that level of adjusted distress appraisal. Intersection of adjacent rating scale categories can be seen at estimated threshold value of the higher of the two categories. For example, the threshold value for category 2 is .04 (reported in Table 1 and visually represented in this figure); the probability of choosing Category 2 at this level is less than .4, as shown by the height of the intersection on the y axis. The graph was generated with WINSTEPS 3.57 (Linacre & Wright, 2004).

Examination of the probability curves (see Figure 1) revealed that in both Distress and Eustress scales Categories 3, 4 and 5 are mixed-up; Categories 4, and 5 are the most probable categories only across a very small section of the variable (from about $-.03$ to about $.09$ for distress and from about $-.03$ to about $.08$ for eustress), whereas the Category 3 is never the most probable category to endorse. Categories 2 and 3 are the most redundant visually for both distress and eustress scales, thus suggesting merging these categories with more probable ones, the same conclusion we reached by examining the table of thresholds. Also, the response options turned out not to be appropriately distanced from one another, given that the distance between the thresholds did not reach the necessary distance of at least 1.4 logits (Linacre, 1999).

To fix the problems with the original 6-point rating scale, we initially combined rating Categories 3 (with a little evidence it is not a source of [threat/challenge]) and 4 (with a little evidence it is a source of [threat/challenge]) as the closest to each other. However, this recategorization was not optimal, using the criteria outlined by (Lopez, 1996)³. In order to achieve the best discrimination of the rating scale and the best data-model fit, we collapsed in addition the categories 1 and 2, and then we collapsed also the categories 5 and 6. Repeating the analysis with the proposed 3-point scale revealed that the items 1 and 2 misfit the distress scale and the item 2 misfit the eustress scale, which were the same items previously identified as having fit problems.

On the basis of these results, we removed the two problematic items for further analyses. Although the misfitting item 1 in the distress scale was within the acceptable range of value for fit in the eustress scale, we eliminated it from both scales to keep the same items in the eustress and distress scale. Maintaining the similarity between the two

³The optimal scoring solution is that which a) provides the best construct definition; b) best separates respondents along the variable; and c) produces the best fit of data to model. In order to identify an optimal categorization, these criteria usually cooperate (Lopez, 1996).

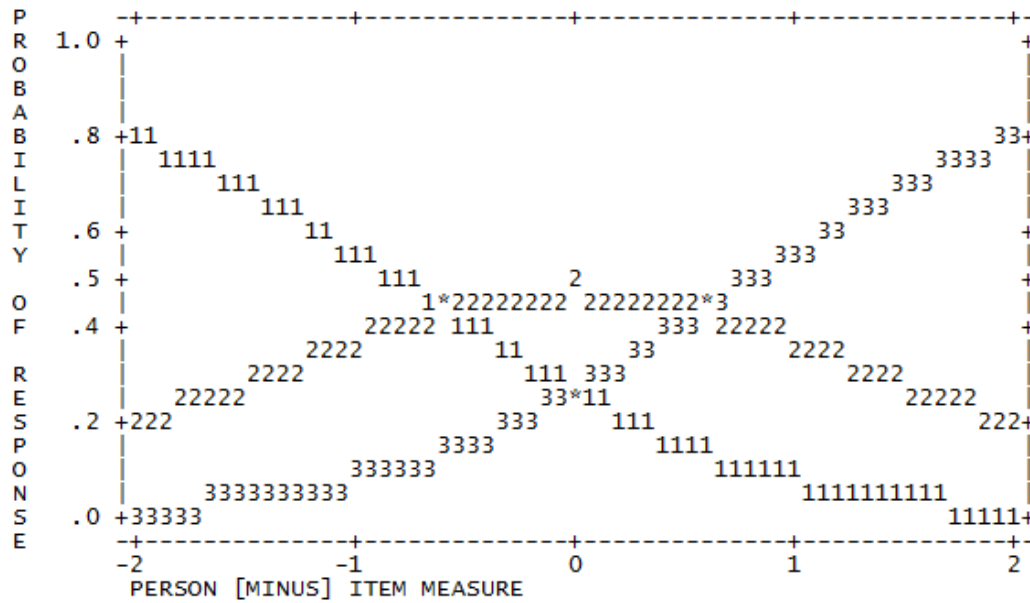
scales is in line with the purpose for the construction of the VEDAS. Table 2 and Figure 2 summarize the result of collapsing rating categories for distress and eustress scales into a parsimonious 3-point scale, arrived at by combining Categories 1 (with all evidence it is not a source of [threat/challenge]) and 2 (with some evidence it is not a source of [threat/challenge]), categories 3 (with a little evidence it is not a source of [threat/challenge]) and 4 (with a little evidence it is a source of [threat/challenge]), as well as the Categories 5 (with some evidence it is a source of [threat/challenge]) and 6 (with all evidence it is a source of [threat/challenge]) and by eliminating the items 1 and 2. They also show the distinctiveness of each newly formed response category for both distress and eustress scales increased, where each category peaks and is, therefore, the most likely response choice at some part of the measured continuum. In the 3-point version of the response scale, the distance between the response options from one another was of 1.18 logits for the distress scale and .94 for the eustress scale, which showed a shorter distance than optimal recommended by Linacre (1999).

Table 2.
Summary of the VEDAS-Revised Distress Three-Point Rating Scale Category Functioning

Category label	Observed count	In-fit mean square	Out-fit mean square	Step threshold	Step standard error
1	1961	1.04	1.09	None	
2	3235	.94	.96	-.59	.03
3	5210	.99	1.01	.59	.02

Note. The same tendency appears in case of the eustress scale, however, for the sake of conciseness, we present here only the results for the distress scale. The results for the eustress scale can be found in the Appendix 1.

Figure 2. Analysis of the modified VEDAS Distress 3-point rating scale categories.



Note. The same tendency appears in case of the eustress scale, however, for the sake of conciseness, we present here only the results for the distress scale. The graphical representation of the analysis of the modified VEDAS Eustress 3-point rating scale categories can be found in the Appendix 1. Probability of response categories as a function of adjusted client distress. Intersection of adjacent rating scale categories is shown at estimated threshold value of the higher of the two categories. For example, the threshold value for category 2 is -0.59 (obtained from Table 5 and visually shown in this figure). The probability of choosing Category 2 at the threshold is slightly less than $.5$, as shown as the height of the intersection on the y axis. The graph was generated with WINSTEPS 3.57 (Linacre & Wright, 2004).

In the solution obtained from collapsing response categories into a new 3-point scale, and from removing the two misfitting items, all the items worked well and presented good fit to the model, while the response scale improved, which is summarized in the Table 3. Combining these categories also made sense conceptually.

Person Separation Reliability index and Item Separation Reliability Index

The strategy of category collapsing into a new 3-point scale and removing the two misfitting items produced also satisfactory person and item reliability and separation indexes⁴. Overall, person and item separation statistics (for distress $G = 2.56$

⁴ There was a minor decrease in person reliability indexes for distress and eustress, however, the item outfit mean square improved for both distress and eustress, as well as the item infit mean square for

and 6.86, respectively; for eustress, $G = 2.25$ and 11.64) showed distinction among persons and item along the measured variable, exceeding the required minimum value of 2.0 (Wright & Masters, 1982). Person and item reliabilities were also high, as expected, corresponding to alpha values of .87 and .98 for distress and of .83 and .99 for eustress. The summary of the results is presented in the Table 3.

Table 3.

Summary of Changes in Person and Item Separation and Reliability as a Result of Collapsing Distress and Eustress Rating Scale Categories and Removing Misfitting Items

Rating Scale	Separation (G)		Reliability		Item In-fit mean square	Item Out-fit mean square	Number of misfitting items	Average measures	Step calibrations
	Person	Item	Person	Item					
Distress									
Original six-point scale	2.56	6.86	.87	.98	1.00	1.06	2 (1, 2)	ordered	disordered
Three-point scale (combining 1 and 2, 3 and 4, 5 and 6; removing 2 misfitting items)	2.25	6.75	.84	.98	1.00	1.02	0	ordered	ordered
Eustress									
Original six-point scale	2.25	11.64	.83	.99	1.02	1.04	2 (1, 2)	ordered	disordered
Three-point scale (combining 1 and 2, 3 and 4, 5, and 6; removing 2 misfitting items*)	2.12	11.04	.82	.99	1.01	1.00	0	ordered	ordered

Note. *Removing the ítem 1 that did not fit in the distress scale and the ítem 2 that did not fit in both distress and eustress scales; Separation (G) is the ratio of the modeled standard deviation to the standard error of measurement (including error due to misfit); Average measures are defined as the average of the ability estimates for all persons in the sample who chose a particular response category. Step calibrations are the difficulties estimated for choosing one response category over another (Bond & Fox, 2001). The alternative solutions were guided by the goals of (a) ensuring that all ítems have good fit, (b) ensuring good functioning of rating scale categories, (c) maximizing separation, and (d) retaining items. The bottom row is the alternative used in the text.

eustress. Also, the value of item infit mean square for distress scale and of item reliability for both distress and eustress remained the same.

Item Calibration and Subject Measurement

We next examined the question of interpreting the person and item separation statistics and the item calibration, as depicted on the person–item map (Figure 3). The greatest source of distress was represented by the item “Having to adopt a negative role (such as sacking someone)” and “Not being able to ‘switch off’ at home”. The item that generated less distress was “Lack of practical support from others outside work”. All the five items of “Relationships” factor as distress had a similar level of endorsability and belonged to the group of the most important sources of distress. Four out of five items that form part of the “Home-Work Balance” factor generated least distress. The greatest source of for eustress was the item “Having to take risks” and the situation that produced least eustress was “Not being able to ‘switch off’ at home”. All the four items of the “Personal Accountability” factor represented the greatest sources of eustress whereas three out of five items from the “Home-Work Balance” factor reflected least eustress. All the five items of “Relationships” factor as eustress had a similar level of endorsability and placed themselves in the part of minor sources of eustress. Interestingly, the situations that coincide in producing least distress and least eustress are “Absence of emotional support from others outside work” and “My partner’s negative attitude towards my job and career”. The rest of the items spread around the mean value of endorsability.

covered a wide range of sources of distress and eustress at work. The items were distributed in a balanced way, their thresholds spreading along the whole continuum of the scale for both distress and eustress scales. For both scales, the distribution of the subjects is equilibrated and close to a normal distribution pattern. For both scales, the subjects and the items correspond well.

In the Tables 4 and 5, we show the calibrated distress and eustress appraisal scales, presenting the situations most/least frequently identified as distress and eustress.

Table 4.

The ordered distress appraisal scale.

Order # ¹	Item #		Average value
<i>The situation most frequently identified as distress</i>			
9	28.	Having to adopt a negative role (such as sacking someone).	.61*
9	6.	Not being able to 'switch off' at home	.58
8	16.	Being undervalued	.44
7	13.	Conflicting job tasks and demands in the role I play	.36
7	14.	Discrimination and favouritism	.30
7	18.	Inadequate feedback about my own performance	.24
7	27.	Dealing with ambiguous or 'delicate' situations	.22
7	15.	Feeling isolated	.22
6	33.	Pursuing a career at the expense of home life	.20
6	8.	Inadequate or poor quality of training/management development.	.20
6	10.	Lack of social support by people at work.	.09
5	12.	Having to work very long hours	.06
5	17.	Having to take risks	.03
4	31.	Implications of mistakes you make.	-.09
3	22.	Demands that work make on my private/social life	-.66
3	21.	Absence of emotional support from others outside work	-.76
2	11.	My partner's negative attitude towards my job and career	-.91
1	24.	Lack of practical support from others outside work	-1.13
<i>The situation less frequently identified as distress</i>			

Note. ¹The number indicates the order that corresponds to the item after calibrating the scale with the Rating Model. *The sign of the average values has been inverted for the sake of clarity.

Table 5.

The ordered eustress appraisal scale

Order # ¹	Item #		Average value
<i>The situation most frequently identified as eustress</i>			
10	17.	Having to take risks	.173*
9	27.	Dealing with ambiguous or 'delicate' situations	1.50
8	31.	Implications of mistakes you make.	1.33
7	13.	Conflicting job tasks and demands in the role I play	.71
7	28.	Having to adopt a negative role (such as sacking someone).	.66
6	8.	Inadequate or poor quality of training/management development.	.21
5	22.	Demands that work make on my private/social life	-.28
5	18.	Inadequate feedback about my own performance	-.32
5	24.	Lack of practical support from others outside work	-.34
4	10.	Lack of social support by people at work.	-.36
4	16.	Being undervalued	-.40
4	12.	Having to work very long hours	-.42
4	33.	Pursuing a career at the expense of home life	-.46
3	15.	Feeling isolated	-.58
3	14.	Discrimination and favouritism	-.60
2	21.	Absence of emotional support from others outside work	-.67
2	11.	My partner's negative attitude towards my job and career	-.76
1	6.	Not being able to 'switch off' at home	-.93
<i>The situation less frequently identified as eustress</i>			

Note. ¹The number indicates the order that corresponds to the item after calibrating the scale with the Rating Model. *The sign of the average values has been inverted for the sake of clarity.

Although the spread of the items is large (i.e., more than 5 logits for distress and more than 6 logits for eustress) and similar to a normal distribution, adding some items to capture low eustress appraisal and some items that would capture high distress appraisal would be recommended because some floor and ceiling effects were present of the persons are at the low end of the eustress scale (low scorers) and on the high end of the distress scale (high scorers). There were also some minor gaps around -1.5, 0.5 and 2.5 logit in distress, and around -2.5, -0.5 and 1.5 in eustress scale.

In addition, some items appear to be redundant. A map of the order of all 18 items in the distress and in the eustress (see Figure 3) showed that many of the items on the VEDAS share virtually identical distress/eustress levels indicating that they are “measure-similar items” (Wright & Stone, 2004). This was the case of the items 13, 14, 15, 18, and 27 in distress and the items 10, 12, 16, 13; 14, 15, and 31; and 18, 22, and 24 for eustress scale. Such items can be redundant in a measure of the overall appraisal of distress and eustress dimensions, although they still provide statistical information and may prove useful as part of subscales measuring specific types of distress and eustress appraisal such as “Home-Work Balance” or “Relationships”.

Precision of the VEDAS 18-item set was assessed by calculating the standard error for each ability score level. The raw scores of the feature estimation, the interval scores and their corresponding errors can be found in the Table 6. As we can see, at the high and low end of scoring, where there are few items that provide information at this ability levels, and few people with these ability levels, the standard errors are, as expected, higher, which indicates lower reliability in these parts. In the middle of the ability scale, where many items target that ability level and many respondents have these ability levels, the standard errors are low, around .34, which indicates high reliability (a standard error of 0.32 corresponds approximately to a traditional reliability coefficient of 0.90, Linacre & Wright, 1999). Also, in the extremes of the continuum, the distances among the summed raw scores are not reflected in the differences in the levels of true interval scores.

Table 6.
Measures on test of 18 Distress scale items

SCORE	MEASURE	S.E.	SCORE	MEASURE	S.E.	SCORE	MEASURE	S.E.
18	-4.79E	1.83	31	-.59	.35	44	.97	.38
19	-3.56	1.01	32	-.47	.34	45	1.11	.39
20	-2.84	.73	33	-.35	.34	46	1.27	.41
21	-2.41	.60	34	-.24	.34	47	1.44	.43
22	-2.09	.53	35	-.12	.34	48	1.63	.45
23	-1.84	.48	36	-.01	.34	49	1.85	.49
24	-1.63	.45	37	.10	.34	50	2.11	.53
25	-1.44	.42	38	.22	.34	51	2.43	.61
26	-1.27	.40	39	.33	.34	52	2.87	.73
27	-1.12	.38	40	.45	.35	53	3.60	1.02
28	-.97	.37	41	.57	.35	54	4.82E	1.83
29	-.84	.36	42	.70	.36			
30	-.71	.35	43	.83	.37			

Note. A similar pattern appears in case of the eustress scale, however, for the sake of conciseness, we present here only the results for the distress scale. The table of measures on test of 18 Eustress scale items can be found in the Appendix 1. Score = raw score on an ordinal scale of the 18 items, summed up without averaging out. The score value is a sum of 18 items without averaging out. Measure = true interval score. Current scores, UMEAN=.0000 USCALE=1.0000; To set measure range as 0-100, UMEAN=49.7995 USCALE=10.4062; To set measure range to match raw score range, UMEAN=35.9278 USCALE=3.7462; Predicting Score from Measure: Score = Measure * 5.3517 + 17.9973; Predicting Measure from Score: Measure = Score * .1732 + -3.1165.

Targeting

Although there are different persons that spread over a wide range of levels of distress and eustress appraisal, the Figure 3 indicates the persons' locations differ slightly from the locations of the items. The majority of the scores were at the moderate to high level of distress appraisal and at the moderate to low level of the eustress appraisal. It suggests that the targeting of the VEDAS is not entirely satisfactory because the distress scale turns out to be too easy. Especially, there is an important gap in the items around 2SD of the subjects. It means that the intensity of the items is not completely adequate for the levels of distress and eustress appraisal of the subjects. Therefore, it would be necessary to provide the subjects with a scale with some more intense items. In turn, the eustress scale could benefit from including some less intense items.

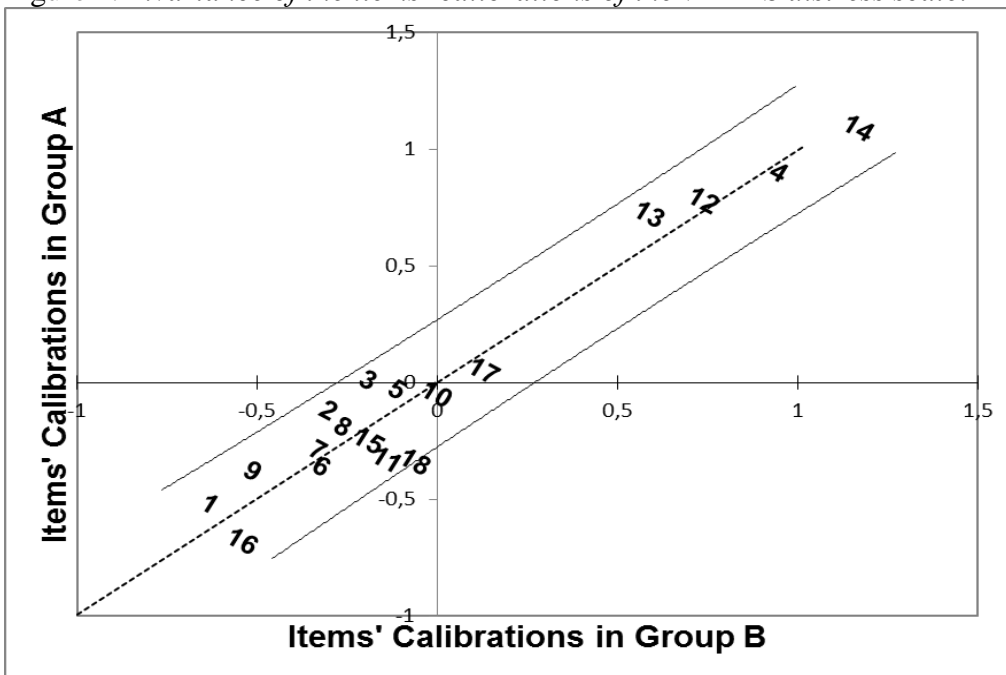
Unidimensionality

Some evidence of a secondary component or sub-dimension in the VEDAS was found in the previous research (Rodríguez et al., in press). In a similar vein, the present results indicated a component explaining 2.4 units of unexplained variance in the distress scale. In order to find out whether the component made sense, the analysis of the content of the items in the extremes of this component has been carried out. The four items in the high pole were related with individual performance in compromised situations: adopting decisions involving other people at work, taking risks, dealing with delicate situations and implications of one's mistakes (items 17, 27, 28, and 31). Three out of four items in the low pole were related to lack of social support (items 10, 11, 15, and 16). In case of the eustress scale, there was also a component that explained 2.4 units of unexplained variance. The analysis of the meaning of this additional component led us to similar observations as in the case of the distress scale; The same four items related to individual performance in compromised situations involving others at work (items 17, 27, 28, and 31) were located in the high pole of the continuum and four items in the low pole were related to lack of social support (items 10, 11, 15, and 18). The results of the distress and eustress scale dimensionality suggest that the additional subdimension in both scales refers to stressors related to relationships with, support of and influence on other people. However, the comparison of the scores on the two opposite sets of items across subjects was not conclusive. Taking into consideration that in case of both distress and eustress the deviation from expected value of 2 of the component was slight, and that the impact of this component on the subjects' responses was relatively weak, the subdimension is rather not a matter for concern.

Invariance of Items' Calibration

Finally, the test of invariance was accomplished by estimating item calibration differences for the sample split randomly in two groups. The Figure 4 shows that when comparing item calibration for two randomly split groups, all the items distribute around the dotted “line of commonality” and there are no outliers that exceed the approximate 95% confidence bands (the item 18 being on the limit). This result was similar for the eustress scale. An additional analysis of invariance of items' calibration in the sample divided by sex did not show either any items going beyond the confidence limit. This facts indicates that there is no test bias, the calibrations of the items are invariant across subsamples which means that the “differential test functioning” is rejected.

Figure 4. *Invariance of the items' calibrations of the VEDAS distress scale.*



Discussion

The purpose of this paper was to provide guidance for the I/O psychologists on how to construct more effective and rigorous questionnaires that provide strong explanatory and predictive power. As an example of an application to a scale instrument in I/O psychology, we used data collected with Valencia Eustress Distress Appraisal Scale (VEDAS, Rodríguez et al., in press). Therefore, we went through every step of the RA which served to calibrate and to improve the psychometric properties the VEDAS.

Eighteen items of the VEDAS functioned well and contributed to measurement precision of the VEDAS, the 3-point rating scale turned out to work adequately for the needs of the VEDAS, and the calibration of sources of distress and eustress has been revealed.

In the first place, the situations reflecting work-life interaction and that involve other persons outside work generated, by and large, least distress and least eustress. The four items least frequently identified as distress and two of the least frequently identified as eustress refer to home-work interference. If it comes to the particular situations, those that turned out to be considered less threatening and less challenging were “Absence of emotional support from others outside work” and “My partner’s negative attitude towards my job and career”. It means that demanding situations concerning work, but outside labor context are considered minor sources of occupational distress and eustress. More emphasis should be therefore put on showing how to appraise stressful situations that occur primarily inside work. Further research could clarify the issue of the importance of home-work spillover in the appraisal of distress and eustress.

Second, the stressful situation that coincided to be simultaneously evaluated as one of the greatest sources of distress and one of the lesser sources of eustress was an item pertaining to the VEDAS workload factor “switching off” at home”. Although this workload-factor item denotes a situation when the quantity of work makes individuals have their minds occupied by their tasks at work in the afterhours, it also refers in a certain way to the home-work imbalance, which, once again, draws our attention to the importance of the life-work interface, the issue of work organization, the dangers connected to work flexibility or new work modalities that impede disconnection from work at home. It also highlights the importance that should be given to promote an effective recovery after work hours for a temporal relief from demands and restoring the resources (Sonnentag & Zijlstra, 2006) to increase well-being (e.g. Westman & Etzion, 2001) and work engagement (Sonnentag, 2003)

Third, the highest levels of eustress were produced by stressful situations that refer to personal accountability and consequences of ones’ actions. All the four items of the “Personal Accountability” factor represented the greatest sources of eustress (especially the situation of “Having to take risks”). In fact, we could expect that such situations as taking risks or dealing with delicate situations would place themselves among the most challenging ones. It shows us that having responsibility for one’s own actions and being in charge of some important decision, difficult as they were, is a considerable source of challenge. Situations like that, therefore, should not be avoided at work as they may have positive consequences for the employees’.

Fourth, we can see that relationships at work are seen differentially by the respondents. The problems connected with relationships at work turn out to be among the greatest sources of distress and the least sources of eustress among the four types of demanding situations. Therefore, the human factor at work turns out to be crucial for

stress appraisal and it seems that preventing problems connected to relationships would be the most efficient way of simultaneously preventing the increase of distress at and the decrease of eustress at work. Especially, situations of “discrimination and favouritism” and “feeling isolated” should be avoided.

Some gaps in the item continuum have been found. The results of the study suggest adding some difficult items to endorse in the distress scale (situations that could hardly be considered source of distress) and some items that would be easy to endorse in the eustress scale (situations that could easily be considered source of eustress). There were also some minor gaps around -1,5, 0,5 and 2,5 logit in distress, and around -2,5, -0,5 and 1,5 in eustress scale. Also, some of the items 13, 14, 15, 18 and 27 in distress scale and some of the items 10, 12, 16, 13; 14, 15, 31; and 18, 22, 24 for eustress scale could be considered for deletion. However, before taking the decision of eliminating any of the items, its content should be thoroughly analyzed. If the items of a similar localization have different content and refer to a different facet of the construct, they will help to better define and measure it. Therefore, none of them should be considered redundant. We suggest that extra items covering the indicated areas should be formulated and additional Rasch analyses should be run on a new sample to ensure that the whole distress/eustress continuum is covered by items of regularly increasing endorsability.

Furthermore, the results of the scale dimensionality suggest that the existence of an additional subdimension in both distress and eustress scales referring to stressors related to relationships with, support of and influence on other people. This finding goes in line with Rodríguez and colleagues (in press) who found the Relationships factor to be the dominant dimension in the VEDAS. However, in the present study, in case of both distress and eustress the value of the indicator only slightly exceeded the

acceptable range, and the impact of the possible additional component on the subjects' responses was relatively weak. Therefore we can conclude that the existence of a subdimension is rather not a matter for concern. In the future scales, more information on this respect has to be included by expanding the items covering the aspects related to the possible additional dimension in order to contrast whether this subdimension is present.

Finally, the calibration of the item turned out to be invariant across the samples both for the the sample divided randomly in two groups and for the sample divided by sex. This information on whether the calibration of the items is invariant across samples is one of the most outstanding advantages when it occurs. In other words, it ensures us that the 18 VEDAS items would behave in the same way if administered to a different sample of subjects as there is no test bias.

A key limitation of this study is the relative thinness of the sample at the lowest levels of agreeability in the distress appraisal scale and at the highest levels of agreeability in the eustress appraisal scale. The consequence of not having sufficient data are larger standard errors and the item estimates not being as stable as they should be at the high end of the scale. Our inferences about the item calibrations are more stable in the middle and at the higher end of distress appraisal and in the middle and at the lower end of eustress appraisal than at the lower and the higher end of the distress and eustress appraisal dimension, respectively. As a result, the positions in the lower end items in the distress appraisal scale and in the higher end items in the eustress appraisal scale are less likely to replicate. Therefore, further validation of the VEDAS would best be targeted at populations less extreme in distress and more extreme in eustress appraisal, characterized by perceiving demands at work frequently as a source of challenge rather than threat, who find joy, opportunity and meaning in highly

demanding situations, who were excluded in the samples analyzed here (these professionals could be e.g. stock market employees). The results could then be equated with our findings to construct a more accurate measure for eustress – distress appraisal.

Also, we can see that in the 3-point version of the response scale both for distress and for eustress, the distance between the response options from one another were shorter than recommended (Linacre, 1999). Additional research is needed to cross-validate the functionality of this newly formed scale.

Despite these limitations, the present analyses indicate that the VEDAS provides a theoretically sound and hierarchically meaningful measure of eustress and distress appraisal.

There are several implications for practice of using Rasch Modeling both in the study of stress and, more broadly, in the field of work and organizational psychology. First, in the managerial practice, the results of revealing hierarchy of stress allow for concentrating on the most important demanding situations that should be prevented or stimulated and that work organization, flexibility, recovery, relationships at work, home-work spillover and feeling of being in control are important issues at work. Second, in academics, RA shows to what extent collapsing response options can help in clarifying the number of options in the response scales, instead of merely assuming theoretically the optimum number of response alternatives. Testing the best number of response options using the Rasch model helps in establishing certainty, instead of making mere suppositions, about the best number of response options for a test, which, in turn would increase its clarity and ensure better functioning. We suggest that using Rasch to check the functioning of the response scale of a newly-created test should form part of the routine scale development process. Its use should also be carried

out in case of the already existing scales to ensure their good functioning, clarify theoretical disputes over the number of response options and provide some empirical evidence on the recommended number of response options to prevent arbitrary modifications in the response scale options for sake of simplicity (for example when one test is used together and “merged” with another questionnaire), that unfortunately tend to happen. Third, RA can be very useful in searching for possible additional psychometric dimensions underlying the questionnaire. Fourth, analyses of invariance should be used in research with a special emphasis put on cases of questionnaires in different language versions to check for the cross-cultural equivalence in meaning of the items. Last but not least, the application of the RA would allow for carrying out parametric analyses without breaking the assumption of the need for continuous-level data.

In sum, the advantages of the Rasch Rating Scale Modeling application are several and show that this approximation is attractive, provides valuable information, and thus should be considered to be broadly used work and organizational psychologists. We suggest that additional analyses such as RA should be conducted in the future as part of measure development in work and organizational psychology. Additionally, it would be useful to apply Rasch analyses to other already existing common instruments used to measure phenomena in work and organizational psychology. Using instruments that provide such a thorough measurement of the target constructs would ensure high quality of the results in the I/O psychology. It would allow taking the lead in the production of highly reliable psychological measures, following the example of such disciplines as medicine and education that have already included Rasch methodology to their scale-development procedures. The improvement of the I/O

measurement methods is an occasion to increase its power of conviction that could be directed to the policy makers and practitioners.

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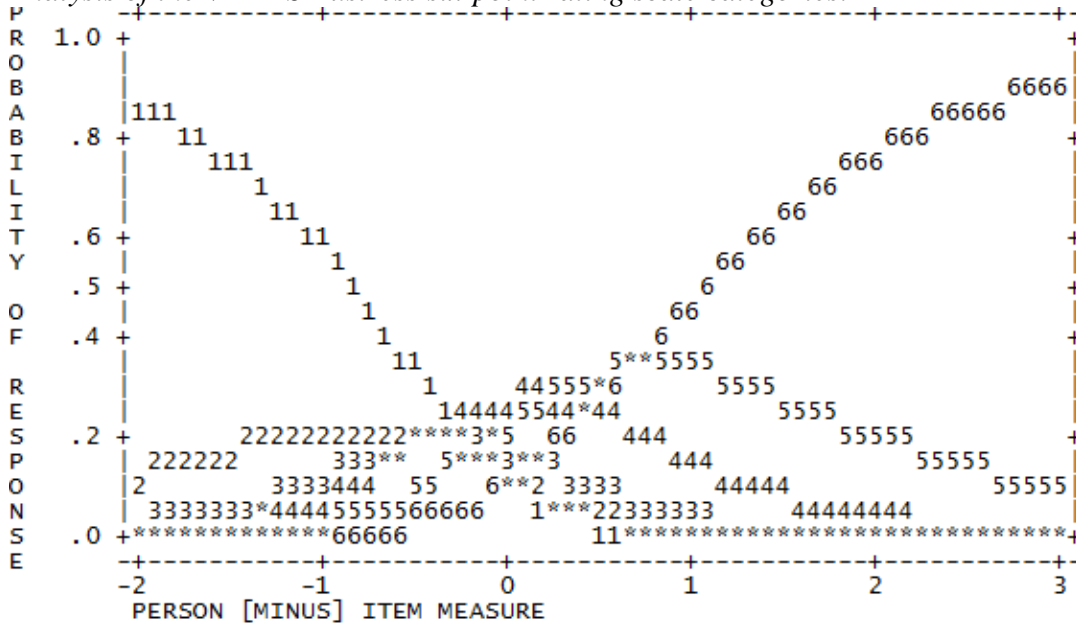
Australian Council for Educational Research.

Appendix 1.

Table 1.
Summary of the VEDAS Eustress Rating Scale Category Functioning

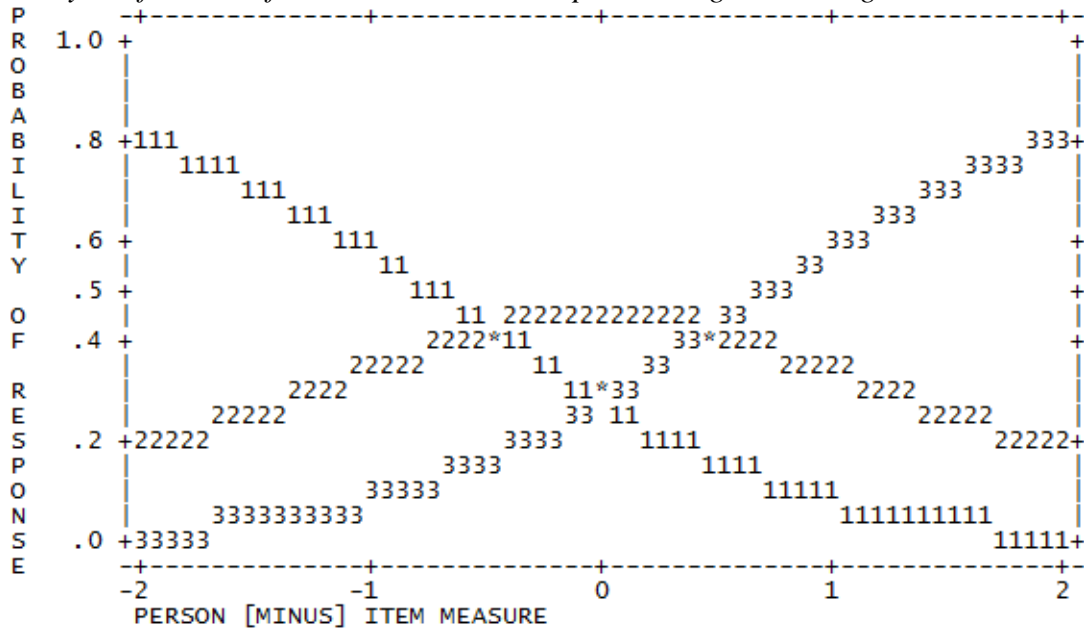
Category label	Observed count	In-fit mean square	Out-fit mean square	Step threshold	Step standard error
1	3731	.95	1.00	None	
2	1733	.98	.94	-.01	.02
3	1504	.91	.91	-.38	.02
4	1818	.88	.87	-.48	.02
5	1414	.95	1.00	.22	.03
6	954	1.31	1.42	.66	.04

Figure 1.
Analysis of the VEDAS Eustress six-point rating scale categories.



Note. Probability of response categories as a function of adjusted person's eustress appraisal. Adjusted Eustress Appraisal is person's eustress appraisal minus item difficulty (both expressed as logit scores); Probability of Category is the likelihood of endorsing a given rating scale category at that level of adjusted eustress appraisal. Intersection of adjacent rating scale categories can be seen at estimated threshold value of the higher of the two categories. For example, the threshold value for category 2 is -.01 (reported in Table 2 and visually represented in this figure); the probability of choosing Category 2 at this level is less than .4, as shown by the height of the intersection on the y axis. The graph was generated with WINSTEPS 3.57 (Linacre & Wright, 2004).

Figure 2.
 Analysis of the modified VEDAS Eustress 3-point rating scale categories.



Note. Probability of response categories as a function of adjusted client distress. Intersection of adjacent rating scale categories is shown at estimated threshold value of the higher of the two categories. For example, the threshold value for category 2 is -0.47 (obtained from Table 6 and visually shown in this figure). The probability of choosing Category 2 at the threshold is slightly less than $.5$, as shown as the height of the intersection on the y axis. The graph was generated with WINSTEPS 3.57 (Linacre & Wright, 2004).

Figure 3.
Invariance of the items' calibrations of the VEDAS eustress scale.

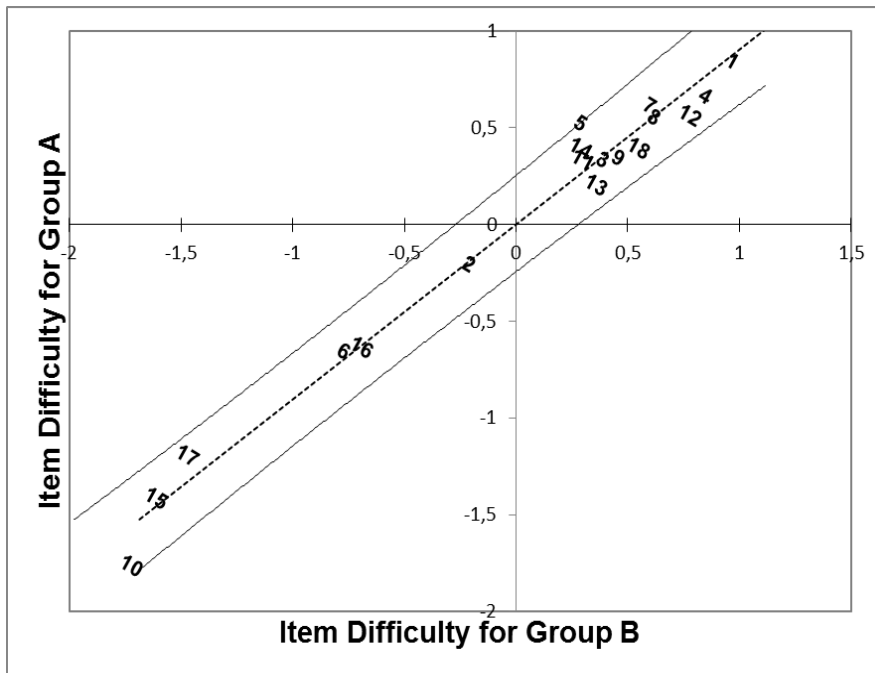


Table 2.
Summary of the VEDAS-Revised Eustress Three-Point Rating Scale Category Functioning

Category label	Observed count	In-fit mean square	Out-fit mean square	Step threshold	Step standard error
1	4709	.97	1.00	None	
2	3060	.93	.87	-.47	.02
3	2267	1.08	1.10	.47	.03

Table 3.

Measures on test of 18 Eustress scale items.

SCORE	MEASURE	S.E.	SCORE	MEASURE	S.E.	SCORE	MEASURE	S.E.
18	-4.94E	1.83	31	-.57	.36	44	1.03	.37
19	-3.72	1.02	32	-.44	.36	45	1.17	.38
20	-2.99	.73	33	-.31	.35	46	1.32	.40
21	-2.54	.61	34	-.19	.35	47	1.49	.42
22	-2.21	.54	35	-.07	.35	48	1.67	.44
23	-1.94	.50	36	.05	.34	49	1.88	.48
24	-1.71	.46	37	.16	.34	50	2.13	.52
25	-1.51	.44	38	.28	.34	51	2.44	.60
26	-1.32	.42	39	.40	.34	52	2.87	.72
27	-1.16	.40	40	.52	.35	53	3.58	1.01
28	-1.00	.39	41	.64	.35	54	4.80E	1.83
29	-.85	.38	42	.77	.36			
30	-.71	.37	43	.89	.36			

Note. Score = raw score on an ordinal scale of the 18 items, summed up without averaging out. Measure = true interval score. Current scores, UMEAN=.0000 USCALE=1.0000; to set measure range as 0-100, UMEAN=50.7190 USCALE=10.2642; to set measure range to match raw score range, UMEAN=36.2588 USCALE=3.6951; Predicting Score from Measure: Score = Measure * 5.2375 + 18.0098; Predicting Measure from Score: Measure = Score * .1778 + -3.2030

ARTICLE 4.

Cross-national model of stress appraisal-outcomes

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§ IVIE

Abstract

Purpose – The present study aims to analyze the role of the appraisal of stressors as harmful and threatening (distress) and/or as opportunities and challenges (eustress) in inducing negative (burnout) and positive (engagement) effects. It compares appraisal of occupational stressors in Poland and Spain and looks for differences between these countries in the associations between different types of appraisals and their positive and negative outcomes.

Design/methodology/approach – The study analyzes the equivalence of relations across cultures by constraining structural equation models to be equivalent across the Spanish (n = 603) and Polish (n = 147) data sets of social care services employees. Multigroup analysis was used to test the invariance of the model for the two samples.

Findings – The results showed that the constrained model is robust, stable and invariant across the Spanish and Polish samples, which means that the structural properties of the model do not differ between the two countries. Also, Spanish and Polish workers obtain similar average results on the levels of the appraisals of distress and eustress. Polish social workers have a significantly higher level of burnout and a significantly lower level of work engagement than Spanish employees.

Practical implications – The confirmation that in both countries eustress has beneficial outcomes on psychological health in the form of work engagement suggests that employees should be taught to perceive work in a more positive way to increase work engagement. The roles that leadership and cultural factors play in this process need to

be taken into consideration. Cross-cultural comparisons of stress are especially relevant for expatriates and for managers in charge of multicultural teams.

Originality/value – The study goes beyond a mere comparison of general stress levels across countries or the relationship between the appraisal of distress and burnout, and it takes into account both negative and positive appraisals of stressors, as well as the strength of their relationships with their outcomes.

Keywords – Cross-cultural, Stress, Eustress, Burnout, Engagement, Multi-group analysis, Spain, Poland

Paper type – Research paper

1. Introduction

Occupational stress in organizations often has deleterious effects on employees' health and companies' performance and costs (eg. Bhagat *et al.*, 2010; Wallace *et al.*, 2009; Podsakoff *et al.*, 2007). It negatively affects over one in four workers in the European Union (EASHW, 2010). Thus, there is a growing interest in identifying the sources of stress in order to implement preventive measures. However, the analysis of stressors, per se, is of limited interest because an important link in the stressors-strain relationship is actually the way individuals appraise them (Lazarus and Folkman, 1984; Nixon *et al.*, 2011). Positive Psychology emphasizes the need to pay attention not only to the negative side of stress at work and its harmful effects, but also to its positive side and beneficial effects. However, until recently the positive approach had hardly been studied (Peiró, 2008). In this context, the present study aims to analyze the role of stress appraisal, as distress and eustress, and its associations with burnout and engagement.

1.1. Stressor appraisals: distress vs. eustress

The transactional approach to stress (Lazarus and Folkman, 1984) has been widely studied in occupational stress. Nevertheless, job stressors have often been assessed through individual reports, and workers' appraisals have hardly been explicitly considered. In Chinese the word "stress" is represented by two characters that stand for 'crisis' and 'opportunity' (Glazer, 2008). Similarly, Selye differentiated between distress and eustress, the former being associated with negative feelings and disturbed bodily states, and the latter with positive feelings and healthy bodily states (Selye, 1974). Along these lines, Lazarus (1993) described *distress* as the appraisal of stressors as a source of harm or threat (anticipation of harm), and *eustress* as the appraisal of demands as opportunities or challenges that the individual feels confident about overcoming by effectively mobilizing and deploying coping resources (see also Simmons and Nelson, 2007). The appraisal of a situation is thus essential to the stress experience and its outcomes (Peiró, 2001; Sutherland and Cooper, 1988). Moreover, distress and eustress can occur simultaneously and in response to the same demands (McGowan *et al.* 2006). However, few empirical studies have analyzed both types of appraisals of the same stressors, and there is a lack of proper measurement tools to adequately assess them.

Different stressor categories have been identified in the literature on work stress, including working conditions, task characteristics, interpersonal relationships, and employer employee relations (see Cooper and Dewe, 2004; Lonne, 2003 for a review), although their salience differs across occupations. In human and social services, workload, personal accountability and interpersonal relations are especially relevant, and their effects on strain and well-being have often been studied (e.g. Lonne, 2003). In the present study, we analyze the positive and negative appraisals of these sources of

stress in human service professionals, and their associations with positive (engagement) and negative (burnout) outcomes.

1.2. Burnout and Engagement

The study of the associations between stressors and outcomes has almost always been considered from the perspective of distress leading to negative effects (e.g. burnout, psychosomatic complaints, depression, etc.). In the work context, burnout is defined as “a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do ‘people work’” (Maslach and Jackson, 1986, p.1). It is often triggered by social and organizational distress experiences (Peiró *et al.*, 2001) that stem from a long-term imbalance between demands and resources, induced by perceptions about working conditions, such as number of hours worked, number of people worked for, lack of autonomy, workload, role stress, etc. (Schaufeli and Buunk, 2003, Spector *et al.*, 1988; Lee and Ashforth, 1996). Thus, burnout is considered the final stage in a breakdown in the adaptation process at work. Based on these findings, the following hypothesis is formulated:

Hypothesis 1: There will be a significant positive relationship between distress appraisals of workload, accountability and work relationships and burnout.

Positive Psychology focuses on an appraisal that considers eustress and pays attention to its positive effects (Peiró, 2008). Positive subjective experiences are important in improving quality of life and preventing pathology (Seligman and Csikszentmihalyi, 2000). Therefore, the study of eustress can complement the knowledge available about the relationships between distress and its negative outcomes. In fact, some evidence has shown that appraisal of the job as challenging and full of opportunities is related to a lower level of burnout (Ben-Zur and Michael, 2007).

Hypothesis 2: *There will be a significant negative relationship between eustress appraisals of workload, accountability and work relationships and burnout.*

Positive experiences are accompanied by personal growth, feelings of vitality, learning (Spreitzer and Sutcliffe, 2007), work satisfaction and organizational commitment (Scheck *et al.*, 1997). Work engagement has often been defined as the opposite of the burnout syndrome (Maslach *et al.*, 2001), although it is more than that. It means being “enthusiastically implicated and nicely occupied with the work demands” (Nelson and Simmons, 2003, p.103), and it is a persistent and pervasive affective-cognitive state defined as “a positive, fulfilling, work-related state of mind characterized by vigor, dedication and absorption” (Schaufeli *et al.*, 2002, p.79). The growing body of literature on work engagement (Maslach *et al.*, 2001) reveals that it is predicted by the perception of challenge (Maier *et al.*, 2003; Quick *et al.*, 2003), and that challenge stressors involve productive engagement (Cavanaugh *et al.*, 2000). Simmons *et al.* (2003) pointed out that eustress is connected to goal-directed behavior represented as a state of active work engagement. In turn, employees’ engagement is positively related to individual (Bal, 2006) and business-unit performance (i.e., customer satisfaction and loyalty, profitability, productivity, turnover and safety) (Harter *et al.*, 2002), and to meaningful business outcomes (Harter *et al.*, 2002, p. 276). Given the important role played by engagement in this study, we aim to test the role of eustress as an antecedent of work engagement. Accordingly, we formulate the following hypothesis:

Hypothesis 3: *There will be a significant positive relationship between eustress appraisals of workload, accountability and work relationships and work engagement.*

1.3. Country differences in the appraisal of stress and their links to outcomes

Occupational stress occurs in societal contexts (Glazer *et al.*, 2004; Glazer, 2008). In fact, cross-cultural stress literature shows country differences in the perceptions of stressors (Chiu and Kosinski, 1995; Spector *et al.*, 2002; Spector *et al.*, 2004; Hobfoll, 2004), the stress consequences (Glazer and Beehr, 2005), and the strength of the relationships between the reported stressors and their outcomes (Glazer and Beehr, 2005; Schaufeli and Janczur, 1994). Moreover, some researchers have suggested that work-health relationships are influenced by contextual triggers such as a country's economic, social and cultural determinants (Bambra *et al.*, 2005, Pisljar *et al.*, 2010). Surprisingly, in this context few studies have considered stressor appraisals (Glazer, 2008), even though they represent a key phenomenon in the stress process, and are influenced by cultural, societal and economic factors. Individuals in a society learn the "shared interpretation rules" (Averill, 1986) to interpret facts and events, as well as their relations and causes. Given the relevant role of culture, cross-national studies of stress across a wide range of cultures and societies are needed. To date, work stress has mainly been studied in the US and Western Europe (Gelfand *et al.*, 2007; Glazer *et al.*, 2004; Nauta *et al.*, 2010), but some of the most robust phenomena in Western-based organizational psychology do not appear to the same degree, if at all, in other countries (Brockner, 2003; Pisljar *et al.*, 2010). In this context, the present study aims to compare the appraisals of occupational stressors and their outcomes in a sample of Polish social workers and another sample of Spanish social workers, and look for country differences in the associations between these appraisals (distress or eustress) and stress outcomes.

1.3.1. Stress appraisal and outcome levels: A comparison of Spanish and Polish social workers

The political and social situations in Spain and Poland during the nineties were rather different. Poland was immersed in the transition from a planned to a market economy, and it had not yet joined the EU, while Spain was a full member of the EU and undergoing a process of economic convergence toward meeting the criteria to adopt the euro (launched in 1999). These differences have been reduced in recent years. However, at the time the data presented here were collected (2007-08), important economic differences still existed between the two countries. The Gross Domestic Product (GDP) per Capita in Poland was 14.892,80 USD, while in Spain it was 36.970,45 USD (IMF, 2008), and the Purchasing Power Standard was 11.102 Euros in Poland and 19.311 Euros in Spain (Eurostat, 2008). Public health expenditure in 2007 in Poland represented 4.6% of the GDP, while in Spain it reached 6.1% (OECD, 2007). At that time, both countries were starting to be influenced by the global economic crisis.

Focusing on working conditions, the European Working Conditions Survey (Jettinghoff and Houtman, 2005) shows that work negatively affects the health of 36% of Spanish employees (close to the EU average of 27) and 65.3% of Polish employees. In a similar way, 37.2% of Spanish workers and 47.3% of Polish workers state that work threatens their health or safety, the difference being mainly due to physical health problems on the part of Polish workers.

Cultural differences between the two countries are also relevant in this context. According to Hofstede (2001), Spain is considered more collectivistic than Poland, and presents a lower level of power distance. Both countries present similar levels on the Uncertainty Avoidance Index, and Poland is slightly more masculine (Hofstede, 2001).

These cultural differences may play a role in stress appraisal and outcomes. As Pines et al. (2002) pointed out, individualism vs. collectivism (Hofstede, 2001) seems especially relevant to the social support people expect to give and receive in a certain culture, and it may have an impact on the kinds of job conditions that are appraised as distressful (Nauta *et al.*, 2010). Based on this suggestion, one could speculate that social relationship demands would be appraised less as distress and more as eustress in collectivistic cultures. We can also argue that countries with less power distance (Spain compared to Poland) would provide more participation, so that workers would appraise demands as opportunities and challenges more than workers in a high power distance culture would. Moreover, in a collectivist culture the expectation is for mutual support. Thus, if there is a relationship between social support and burnout, Spanish professionals would be expected to show lower levels of burnout than Polish professionals. Moreover, Nauta et al. (2010) pointed out that the difference in the degree of individualism versus collectivism (Hofstede, 2001) may have an impact on the kinds of job conditions that are appraised as distressful. Based on this suggestion, one could speculate that social relationship demands would be appraised less as distress and more as eustress in collectivistic cultures. Finally, we can argue that countries with less power distance (Spain compared to Poland) would provide more participation, so that workers would appraise demands more as opportunities and challenges than the workers in a high power distance culture would.

As our study focuses on social workers, it is important to consider the societal and labor contexts of this sector in both countries. Social work is an occupation that is often exposed to stressful events (Blok, 2007), and is especially at risk of burnout (Kristensen *et al.*, 2005). It is fairly similar across countries (Glazer, 2008), although differences may exist due to specific working conditions. In the sector analysis of the

2005 European Working Conditions Survey (Jettinghoff and Houtman, 2009), data show that both working conditions and health outcomes are more unfavorable for the Health and Social Work Sector in Eastern countries than in Southern European countries. In fact, according to Blok (2007), Polish employees report that their work is undervalued and takes place in poor organizational conditions. There is often a shortage of employees, which leads to working extra hours. The wages in Polish social services are also among the lowest in the country. Spanish social workers, often in the public sector, also report that their working conditions are stressful (Duran, 2010), but they are generally satisfied with their work, predominantly with their job stability, work schedules and salaries. In fact, the average net income per month in social services in the public sector exceeds the average national income in Spain (Cuesta, 2008; INE, 2005). Some studies have identified higher levels of burnout in Polish human service professionals than those found in the other countries involved in the comparison. Golembiewski et al. (1993), comparing burnout in different work settings in seven countries, found that it was higher in Canada, Poland and the U.S. Schaufeli and Janczur (1994) also found that burnout was significantly higher in Polish nurses than in Dutch nurses. The authors suggest that supportive social networks and cohesion could help to explain the differences. In Spain during the same years, the levels of burnout obtained in a sample of 568 nurses were clearly lower than those reported by Schaufeli and Janczur (1994) for Polish nurses on emotional exhaustion and depersonalization, while they were similar for lack of personal accomplishment (Gil-Monte and Peiró, 2000). Finally, regarding positive appraisal and engagement, as far as we know, there are no empirical data comparing the two countries. In sum, previous results suggest that Polish social workers will present higher burnout levels than Spanish social workers. Taking into

account socioeconomic and working conditions in the countries, as well as their cultural characteristics, the following hypotheses are formulated:

Hypothesis 4a. *Distress and burnout are expected to be higher in Polish than in Spanish Social workers.*

Hypothesis 4b. *Eustress and engagement are expected to be lower in Polish than in Spanish Social workers.*

1.3.2. Stress appraisal-outcomes relationship model: A comparison of Spanish and Polish social workers

The study of the relationships between stressors and strain has also received some attention in cross-cultural research. Schaufeli and Janczur (1994) found that perceived stressors, especially uncertainty and imbalance between investments and outcomes, significantly predicted the level of burnout in both Polish and Dutch nurses, while personality characteristics or objective features of the job were not as relevant. Glazer and Beehr (2005), after analyzing the stress process in nurses from four different countries, concluded that although mean score differences were found across countries, the direction of the relationships between variables was the same and indicated consistency in the implications of three role stressors across countries. The authors tentatively concluded that stress is a culture-general process. Nevertheless, in a sample of employment counselors working with Hong Kong Chinese clients, Chiu and Kosinski (1995) found that as members of an Asian collectivistic society, Hong Kong Chinese workers tend to interpret and handle work-related stress differently from Westerners, even when they have been exposed to Western business practices. Moreover, Plisjar et al. (2010) found that the negative effect of working overtime on health is stronger for hospital employees in Eastern than in Western Europe. They also

found that job autonomy showed a positive effect on health in Western Europe, while the effect was negative in Eastern Europe. Thus, they suggest that employee stress-health outcome relations are affected by more than individual working conditions, as they are embedded in a broader societal context. In sum, previous research suggests that there may be differences in the strength of the associations between the different types of appraisals and their corresponding outcomes, even though the direction of these associations tends to be the same. Based on these results, we aim to test the following hypothesis:

Hypothesis 5: The direction of the previously hypothesized relations (H1, H2, and H3) will be the same for both Polish and Spanish social workers, but the strength of the associations in the model will differ significantly across samples.

2. Method

2.1. Participants and procedure

The characteristics of the samples used in the study are shown in Table I. Participants were 750 employees (603 Spanish and 147 Polish) of social care services. Social service workers' jobs are fairly similar across countries (Glazer, 2008); thus, it is a relevant group for research on stress and comparative cross-cultural studies because it is possible to control for occupation. The average age was 36.9 (s.d. = 8.7). The composition of our sample (81% are women) reflects the real sex distribution in the social services sector in the regions studied. The data were collected in the Comunidad Valenciana in Spain and in the Silesian Voivodeship in Poland, two regions with similar economic situations, located around the average income per capita in their countries (INE, 2009; GUS, 2010). Taking into consideration these characteristics attributed to Poland and Spain for the timeframe when the data were collected (between 2007 and

2008), social service workers in the Comunidad Valenciana and in the Silesian Voivodeship

Table I.
Spanish and Polish sample characteristics

Characteristics	Spain <i>n</i> (%)	Poland <i>n</i> (%)
<i>Sex</i>		
Male	109 (18.4)	31 (21.8)
Female	484 (81.6)	111 (78.2)
<i>Status</i>		
Single	178 (30.4)	38 (26.6)
Married	355 (60.6)	95 (66.4)
Widower	6 (1.0)	1 (0.7)
Separated/divorced	47 (8.0)	9 (6.3)
<i>Education level</i>		
Primary/secondary school	109 (18.8)	30 (22.1)
Graduated	228 (39.3)	26 (19.1)
University/college degree (bachelor)	208 (35.9)	77 (56.6)
Doctorate	5 (0.9)	1 (0.7)
Other	30 (5.2)	2 (1.5)

Notes: *n* = 603 for Spanish sample and 147 for Polish sample; the number in brackets represents the valid percentage of the sample

turned out to be a convenience sample of a special interest for our study. The study design was cross-sectional. Once the social service centers had been contacted by phone and agreed to participate, a self-completion questionnaire was administered to the employees by the members of the research team. The majority of the questionnaires were filled in and gathered on site, while in some cases they were left for the participants and personally collected from them by the psychologist about four days later. If a questionnaire was not fully filled out on the spot, the interviewers left envelopes and stamps and asked the participants to send the questionnaires back by post. The Spanish data collection procedure was also used in Poland following the same steps. Anonymity of the data was guaranteed.

The response rate was 75% in Spain and 86% in Poland. These high rates are due to the data collection process.

When the scales used were not available in Spanish or in Polish, they were translated from English to Spanish and to Polish by bilingual psychologists proficient in the respective languages. They were then subjected to the back-translation procedure (Brislin, 1970, 1980). The Spanish and Polish versions of the scales were given to a Spanish or Polish psychology professor for comments on the comprehension and clarity of the items. The result of the translation was compared to the original to check that the items had the same meaning.

2.2. Measures

2.2.1. Perception of distress and eustress

The perception of stress was measured using the Valencia Eustress-Distress Appraisal Scale (VEDAS, Rodríguez *et al.*, 2011). This scale is composed of 20 items representing demanding situations that could be appraised as both distress and as eustress, and it presents commensurable data for both appraisal types. This feature makes it possible to measure the possible coexistence of eustress and distress, emphasizing the positive side of stress in addition to its negative side. The items included in the VEDAS were initially selected from the “Pressure Management Indicator” (PMI, Williams and Cooper, 1998), and the sources of pressure presented were worded in a neutral way to facilitate their positive and negative appraisal by the subject. In this way, while covering similar sources of stress to those of the PMI, the VEDAS provides specific information about their appraisal by respondents as eustress and distress. The scales have good psychometric properties and can be used in different professional groups. To the best of our knowledge, this is one of a handful of tools that

assess both distress and eustress in a commensurate way. VEDAS permits the measurement of the appraisal of four types of stressors at work: workload, personal accountability, relationships and home-work balance. In this study we focused on the three types of stressors related to the demands of the job, in order to avoid the additional complexity of including family cultural differences. Examples of the items are “*Taking my work home*” for workload, “*Having to take risks*” for personal accountability and “*Feeling isolated*” for relationships. Every stressor was then rated as threatening or challenging/opportunity using two response scales: one for threat and the other for challenge/opportunity. Challenge/opportunity was defined for the respondents as an opportunity for personal growth and to develop one’s capabilities. A 6-point scale was used, ranging from 1 (clearly, it is not a source of threat) to 6 (clearly, it is a source of threat) for distress appraisal, and in a similar way from 1 (clearly, it is not a source of challenge/opportunity) to 6 (clearly, it is a source of challenge/opportunity) for eustress appraisal. Cronbach’s alphas for the Spanish version were adequate in all its dimensions. In the Polish version, internal consistency was also good, except for the scale of eustress appraisal of workload, where the alpha coefficient indicates moderate reliability (see Table II).

2.2.2. Burnout

To measure burnout we used the Maslach Burnout Inventory - General Survey (Schaufeli *et al.*, 1996) which was translated from English to Polish and then subjected to the back-translation procedure (Brislin, 1970, 1980). The scale has 16 items with a response scale from 0 (never) to 6 (every day), and it reveals good internal consistency of both the Spanish and Polish versions (Cronbach’s $\alpha > .80$). Burnout was considered as one factor, where the higher the score, the higher the level of burnout.

2.2.3. Work Engagement

Work Engagement was assessed with the “shorter version of the Utrecht Work Engagement Scale” (UWES-9), reduced by the authors (Schaufeli *et al.*, 2006). The scale ranges from 0 (never) to 6 (every day). The measure applied to both populations is characterized by satisfactory psychometric values (α around .90). Work engagement was considered as one factor, where the higher the score, the higher the level of engagement.

2.3. Imputation of Missing Data

In the Spanish and Polish samples, data from participants who omitted 50% of the items were completely removed from the analyses. For the remaining respondents, missing values were imputed using the information from the item mean.

2.4. Overview of Analysis

Our analysis addressed the issue of equivalence of relations across cultures by constraining structural equation models to be equivalent across the Spanish and Polish data sets (see Figure 1). As we stated previously, we expected that the direction of the relationships between distress/eustress appraisal and burnout/engagement would be maintained. However, we expected possible differences in the strength of the relationships between the variables in the two countries. Thus, we hypothesized that the addition of the equality constraint would create a significant decrement in fit, leading us to conclude that the structural properties of the model differ between the two groups. Details of the analyses are provided in the Results section.

3. Results

Means and standard deviations, alpha coefficients and correlations are shown in Table II, and the differences in means are presented in Figure 2. Spanish and Polish workers present similar average levels of distress about workload, personal accountability and relationships. Regarding eustress, Spanish social workers present significantly higher levels than Polish professionals of personal accountability considered as opportunity and challenge ($p < .01$). No differences were found in workload and relationships, which show lower average levels for both samples. The average scores on the distress scales in both samples are high, clearly exceeding the midpoint of the scale, while the average scores for eustress fall below the midpoint of the scale, except for personal accountability. In general, both Spanish and Polish social workers perceive more distress than eustress. Polish workers have a significantly higher level of burnout than the Spanish (2.41 and 1.83), $p < .01$, and significantly lower work engagement (3.37 and 3.94, $p < .01$). Still, the level of burnout in the two samples does not exceed the midpoint of the scale, while the level of work engagement lies above its midpoint. Therefore, hypothesis 4a is supported for burnout but not for distress appraisal. Hypothesis 4b is supported for engagement and for personal accountability perceived as eustress.

Table II.
Means, standard deviations, correlations (Pearson) and internal consistency reliabilities of the measured variables in Spanish and Polish samples

	M Spain (SD)	M Poland (SD)	t															
				1	2	3	4	5	6	7	8							
1. Appraisal of workload as distress	4.22 (0.99)	4.13 (0.90)	-1.06	0.71 (0.71; 71)														
2. Appraisal of personal accountability as distress	4.33 (1.05)	4.42 (0.91)	1.06	0.53** (0.79; 79)	0.79 (0.79; 79)													
3. Appraisal of relationships as distress	4.36 (1.25)	4.38 (1.02)	0.19	0.67** (0.86; 0.82)	0.53** (0.86; 0.82)	0.86												
4. Appraisal of workload as eustress	2.62 (0.93)	2.55 (0.73)	-1.03	-0.15** (0.67; 0.59)	-0.12** (0.67; 0.59)	-0.13	0.66											
5. Appraisal of personal accountability as eustress	4.08 (1.04)	3.57 (0.90)	-5.93**	0.16** (0.71; 0.66)	0.22** (0.71; 0.66)	0.20**	0.33**	0.71 (0.71; 0.66)										
6. Appraisal of relationships as eustress	2.53 (1.16)	2.69 (0.98)	1.78	-0.10** (0.81; 0.79)	-0.07 (0.81; 0.79)	-0.03	0.60**	0.35**	0.81									
7. Burnout	1.83 (0.77)	2.41 (0.92)	7.14**	0.22** (0.83; 0.89)	0.22** (0.83; 0.89)	0.13**	-0.10**	-0.15**	0.85 (0.83; 0.89)									
8. Engagement	3.94 (1.04)	3.37 (1.20)	-5.80**	-0.15** (0.89; 0.93)	-0.13** (0.89; 0.93)	-0.09*	0.16**	0.19**	0.06 (0.89; 0.93)	0.06								

Notes: Significant at: * $p < 0.05$ and ** $p < 0.01$; $n = 603$ for Spanish sample and 147 for Polish sample; the correlations are aggregated data of the Spanish and Polish samples; separate correlations for the two samples might be facilitated after contacting the authors; values on the diagonal are Cronbach's α (Spanish sample and Polish sample)

Figure 1. Hypothesized model of the appraisal of eustress and distress

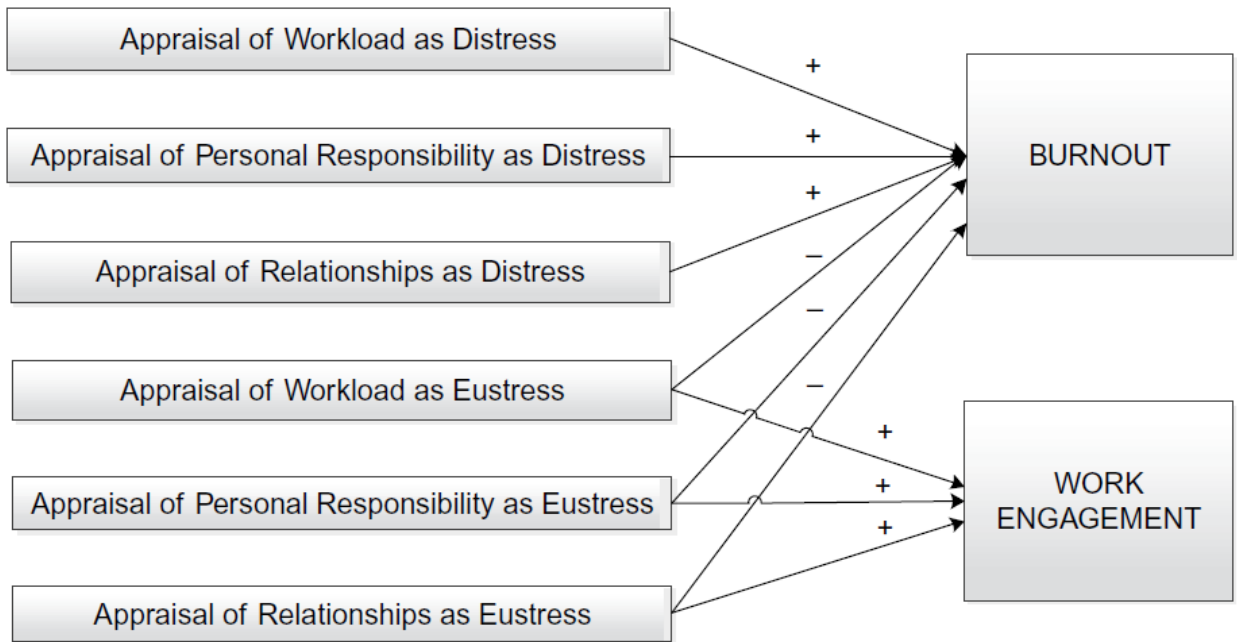
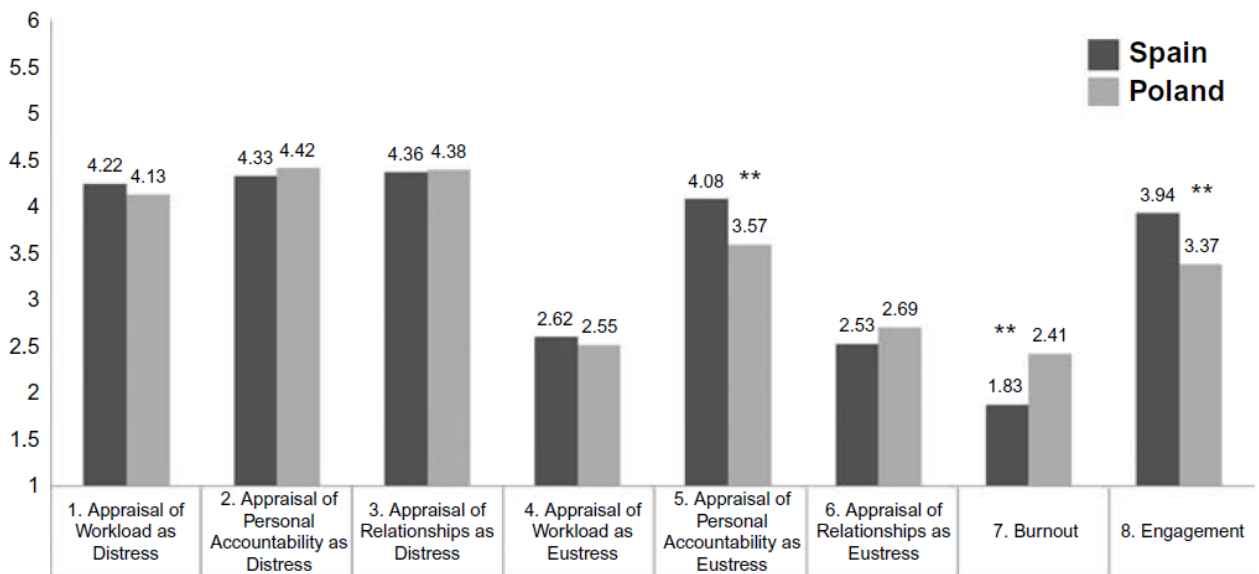


Figure 2. Comparison of means in Spanish and Polish samples



Notes: Significant at: * $p < 0.05$ and ** $p < 0.01$; $n = 603$ for Spanish sample and 147 for Polish sample

To test Hypotheses 1, 2, 3 and 5, the model shown in Figure 1 was first simultaneously fit to the Spanish and Polish samples' data, taking advantage of LISREL's 8.8 (Jöreskog and Sörbom, 2006) multi-group feature using Maximum

Likelihood estimation. Good fits were obtained for the samples; the fit indices are presented in Table 3. It is important to note that the χ^2/df ratio was below 3.0, the non normed fit index (NNFI) was .90, and the comparative fit index (CFI) was above .95. The root mean square of approximation (RMSEA) was below .07.

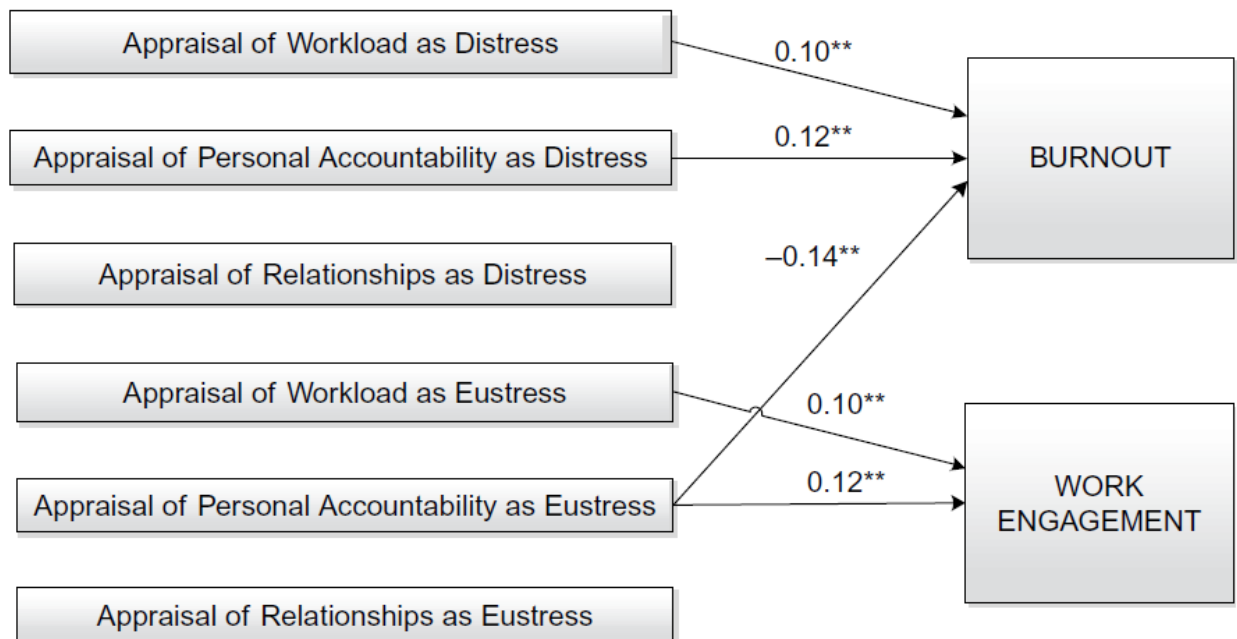
Regarding possible differences between the Spanish and Polish models, we tested the invariance of the proposed model for both samples. We compared the fit of the constrained version of the model, in which the targeted estimates were constrained to be equal to that of the unconstrained model for both countries. The results showed that there were no significant differences between the multi-group model and the constrained one (see Table 3 and Figure 3). Hence, we chose the most parsimonious one, the constrained model, which was robust, stable and invariant between Spain and Poland. It led us to conclude that the structural properties of the model do not differ between the two countries. The results showed that the appraisal of workload and personal accountability as distress is positively related to burnout (Hypothesis 1 confirmed), the appraisal of personal accountability as eustress is negatively related to burnout (Hypothesis 2 partially confirmed), and the appraisal of workload and personal accountability as eustress is positively related to engagement (Hypothesis 3 confirmed). Finally, the direction of the hypothesized relations was the same for both the Polish and Spanish samples, and no significant differences were found in the strength of the relationships between the reported stressors and their outcomes (Hypothesis 5 partially confirmed).

Table III.
Fit indices for structural models

Model	χ^2	df	χ^2/df	RMSEA	NNFI	CFI	$\Delta\chi^2/df$
Multisample	27.66	8	3.46	0.081 (0.049; 0.120)	0.90	0.97	–
Constrained	36.47	14	2.61	0.066 (0.040; 0.092)	0.93	0.97	–0.85

Notes: $n = 603$ for Spanish sample and 147 for Polish sample; dash indicates that information was not applicable and therefore was not calculated; RMSEA – root mean square error of approximation; NNFI – non-normed fit index; CFI – comparative fit index; the difference between the multisample and constrained model is not statistically significant, $\Delta\chi^2(df) = 8.81(6)$, $p > 0.05$

Figure 3.
Model of the appraisal of eustress and distress in Poland and Spain



Notes: Significant at: * $p < 0.05$ and ** $p < 0.01$; $n = 603$ for Spanish sample and 147 for Polish sample

4. Discussion

The purpose of this study is to examine the role of stressors' appraisals as distress or eustress in inducing negative (burnout) and positive (engagement) consequences in samples of Polish and Spanish social workers. These professionals are

often exposed to stressful events (Blok, 2007), and they are at risk of burnout (Kristensen *et al.*, 2005).

The results show that both the direction and strengths of the relationships between the types of stress appraisals and their outcomes (burnout and engagement) are similar in Spain and Poland. At the same time, the levels of positive appraisal of personal accountability and those of burnout and engagement differ across samples. With this in mind, three theoretical contributions stem from this study. First, it advances the understanding of the stress process across cultures by showing its invariance in these two countries, both in the direction and in the strength of the appraisal-outcomes relations considered. On the one hand, the similarities in the direction of the relations support results obtained by Glazer and Beehr (2005); on the other, the lack of differences in the strength of the relationships between stress appraisal and outcomes contrasts somewhat with results obtained by Schaufeli and Janczur (1994). This inconsistency could be due to the increasing contextual similarities of the two countries, or it could be interpreted by considering the professional identity across countries among social workers (Glazer, 2008) and their professional socialization processes. Second, this study underlines the importance of negative and positive appraisals of stressors, which may occur simultaneously (McGowan *et al.* 2006) and differentially result in negative or positive outcomes for health. Our results in this respect are in line with those obtained in previous studies. More specifically, support is provided for the positive relations between distress appraisal and burnout (Schaufeli and Van Rhenen, 2006; Boswell *et al.*, 2004), and the negative relation between eustress and burnout (Ben-Zur and Michael, 2007). Nevertheless, some studies focusing on secondary traumatic stress have found that this distressful experience does not only produce burnout and compassion fatigue in caregivers (Figley, 1995) but also gratifying

experiences, compassion satisfaction and posttraumatic growth (Calhoun and Tedeshi, 2006; Stamm, 1999, 2002). Future studies will have to analyze the potential positive experiences of distress at work. Our results also support the positive relation between eustress and engagement (Maier *et al.*, 2003; Quick *et al.*, 2003; Cavanaugh *et al.*, 2000). In this way, this study reinforces the Positive Psychology perspective, which emphasizes the need to pay attention to the positive effects of eustress, and not only to the deleterious effects of distress. Third, the differences and similarities obtained across the countries in stress and outcomes raise relevant issues for cross-cultural stress research. As far as stress appraisal is concerned, the differences identified were quite minimal (only for positive appraisal of personal accountability), in contrast to findings from previous research (Chiu and Kosinski, 1995; Spector *et al.*, 2002; Hobfoll, 2004). This discrepancy raises the issue of the cultural distance across countries when comparing stress perceptions and appraisal. Somewhat surprisingly, in spite of the similarities found in distress, Polish workers present significantly higher levels of burnout than the Spanish. These results are consistent with those obtained by Schaufeli and Janczur (1994) and Golembiewski *et al.*, (1993) more than a decade ago. This persistent feature of occupational health in Poland has been complemented in the present study with the finding that engagement is significantly lower in Poland than in Spain. The similarities found between these two countries in the appraisal of work demands, together with significant differences in burnout and engagement, suggest that contextual rather than work-content stressors could account for the differences found in the outcomes. In fact, Blok (2007) reported that Polish social workers have to deal with difficult work situations, under-valuing of their work, low wages and poor organizational conditions, and these conditions differ from those reported by Spanish social workers, who are generally satisfied with their work and salaries, although they

perceive their work as stressful (Colegio Oficial de Diplomados en Trabajo Social y Asistentes Sociales de La Rioja, 2008; INE, 2005). Cultural differences could also help to explain the differences in eustress of personal accountability between Spanish and Polish workers. The lower power distance in Spanish culture (Hofstede, 1991), leading to a more participative work environment, could produce more positive appraisals of personal accountability in Spain than in Poland. In addition, Schaufeli and Janczur (1994) suggested that Polish nurses suffered more burnout because social cohesion and social networks were not available to them to the same extent as they were to Dutch nurses. This could also be the case in our study, given that Poland is a less collectivistic country than Spain. With these possible interpretations in mind, it is clear that more studies are needed to address the complex relationship between cultural dimensions and the meaning and appraisal of stressors in different countries.

5. Contributions, Limitations and Implications

In sum, the present study makes some important contributions. First, it provides relevant cross-cultural knowledge about the antecedents of stressor appraisals and their consequences. Second, it is based on samples from two European countries where stress processes have not been sufficiently studied from a cross-cultural approach. Third, the study goes beyond a mere comparison of general stress levels, taking into account both negative *and* positive appraisals of stressors, as well as the strength of their relationships with positive and negative outcomes. Fourth, despite Polish and Spanish differences in the levels of burnout and work engagement, a general relationship between negative and positive appraisals of work stressors and burnout/engagement is found to be invariant in both countries, and the types of work stressors that have the most impact on positive and negative health outcomes in social workers are identified. Identifying the sources of stress is vital to enabling the implementation of preventive measures and finding the

best ways of coping with the negative outcomes of stress in the two focal countries. In both, appraisals of personal accountability and workload as eustress have beneficial outcomes for psychological health in the form of engagement. Thus, an emphasis should be placed on positive experiences related to these aspects (Luthans, 2002). Fifth, the present research fills the previous gap in studying appraisals of task characteristics and interpersonal relations, which are especially relevant in producing strain and assuring well-being in human and social services professions. Finally, the study sparks a debate about a possible combination of distress and eustress that would produce the best positive outcome at work (i.e. engagement). There is a need to continue the research on these issues. For instance, it has been suggested that exaggerated positive perceptions of work challenges may be related to workaholism and threaten health (Kofta, 2003).

However, the results of this study require cautious interpretation due to some limitations. First, due to the cross-sectional nature of the study, causal relationships cannot be established. Second, the Polish sample (147 subjects) was smaller than the Spanish one (603), which could reduce the significance level of some relationships studied. Third, even though on average individuals in Poland have less collectivistic and greater power distance values than Spaniards (Hofstede, 2001), we did not directly evaluate cultural orientations, but instead used country as a proxy. Finally, other contextual stressors, like cultural factors not considered, could influence the level of employees' burnout and engagement. Generally speaking, large-scale multinational studies including a broader array of countries and directly assessing cultural dimensions should be carried out to provide converging evidence about the functioning of the proposed model.

The present study provides some relevant suggestions for future cross-cultural research on stress. When analyzing stressors, it is important to consider both contextual

and work-related factors, as well as their positive and negative appraisal. It is also important to analyze the relationship between stressor appraisals and their interaction on employees' well-being and health. Cross-cultural studies should explicitly consider operationalizations of national contexts, such as public expenditure on social services, labor market flexibility policies, and the unionization of the labor force or general working conditions.

The present study also provides some practical indications. First, it is important to change the emphasis of analyses and stress interventions from merely identifying negative stressors and repairing their damage to promoting eustress and encouraging human strengths at work (Luthans, 2002). Cross-cultural comparisons of stress are especially relevant for expatriates and for managers in charge of multicultural teams. Our study suggests that managers from Spain who work in Poland might be aware that similar work-stress appraisal levels may be accompanied by higher levels of burnout in Polish workers, probably induced by worse national economic and contextual conditions and by their culture. Such information can be essential in helping managers to understand the importance of creating situations that can be viewed as opportunities rather than threats. It also opens up a range of possibilities for designing training courses for organizations, focusing on stress management and teamwork to take advantage of the cultural mix at work, in such a way that employees can learn from others how to perceive work in a more positive way. The role of the leadership as sense makers and promoters of quality of working life needs to be taken into consideration (Peiró and Rodríguez, 2008). Finally, the approach to training, the degree of autonomy, and manager-subordinate relations should also be tailored to different cultures in order to achieve maximum effectiveness (Gelade *et al.*, 2008).

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ARTICLE 5.

Patterns of Eustress and Distress Climates in Teams: Their Profile and Outcomes

Kozusznik, M. *, Rodriguez, I. *; Peiró, J.M.*[§] (in preparation). Patterns of eustress and distress climates in teams: their profile and outcomes.

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Abstract

The purpose of the present study is to analyze the profiles of stress climate at work and its outcomes for the members of the teams. Stress climate was understood as a phenomenon that emerges when the members of a particular group in the organization perceive certain events as a source of distress and/or eustress and it was classified using cluster analysis. Using a sample of 603 social service employees, three clusters of work teams were identified: *distressed* (predominance of a shared distress appraisal), *eustressed* (predominance of a shared eustress appraisal), and *balanced* (with a similar level of shared distress and eustress appraisals). Clusters were validated on an additional sample ($n = 431$). Consistent with the formulated hypotheses, individuals in the distressed work climate were more likely to have a higher level of Exhaustion ($p < .05$) and Cynicism ($p \leq .10$) in comparison with the eustressed team climate where the level of these variables was the lowest. Also, individuals in the distressed team climate were more likely to have a lower level of Vigor and Dedication ($ps < .05$) in comparison to the balanced team climate where the level of these variables was the highest. Satisfaction increased over time in eustressed climate, whereas it decreased in balanced and distressed teams ($p = .06$). The levels of Exhaustion and Cynicism presented a trend of regression towards the mean in all three profiles of team climate. The importance of considering shared appraisal of stress and the implications for effective interventions are discussed.

Introduction

Work in teams has become necessary for many organizations (DeChurch & Mesmer-Magnus, 2010). One of the work team's characteristics, that received strong attention in research, is work climate (Schneider & Hall, 1972). For example, pertaining

to a group that shares knowledge and expertise can have impact on individual well-being (understood as low burnout and high vitality) of the members of a team (Ntoumanis, Taylor, & Thøgersen-Ntoumani, 2012) and for their performance in the organization (Salanova, Agut, & Peiró, 2005; Schulte, Ostroff, Shmulyian, & Kinicki, 2009; Wallace & Chen, 2006). Climate is a multi-dimensional construct that emerges as a shared perception of the members of the team (Rousseau, 1988; Reicher & Schneider, 1990). In that way, shared perception of stressors can give rise to the climate of stress. Lansisalmi, Peiró, and Kivimaki (2000) understand stress climate as a phenomenon that emerges depending on whether the members of a particular group in the organization perceive a certain event as stressful. These authors point out that stress climate could have negative consequences for individuals, understood as *distress*. However, they do not take into account the positive psychology approach that underlines the importance of the perception of stressors and indicates that the results of stress can also be positive, depending on the appraisal of stressors that is made.

This idea was already pointed out by Selye (1956) when differentiated between “bad” and “good” stress. So, *distress* has been conceptualized as the “bad stress” and it is associated with negative feelings and disturbed bodily states (Selye, 1974), it relates to the appraisal of stressors as a source of harm or threat (anticipation of harm) (Lazarus, 1993) and it is operationally defined as a negative psychological response to a stressor, as indicated by the presence of negative psychological states (Nelson & Simmons, 2003). As we have indicated, Selye (1974) also mentioned *eustress*, the “good stress”. *Eustress* is connected to positive feelings and healthy bodily states (Selye, 1974), relates to the appraisal of demands as opportunities or challenges that the individual feels confident about overcoming by effectively mobilizing and deploying coping resources (Lazarus, 1993; see also Simmons & Nelson, 2007), and makes reference to a

productive activation, vital energy (Schwarzer & Knoll, 2003) and a will to reach personal growth. This reasoning is then adopted by positive psychology that considers positive and/or negative outcomes of stress to depend strongly on the positive (as eustress) and/or negative (as distress) appraisal of stressors that is made (Lazarus & Folkman, 1984; Peiró, 2001; Sutherland & Cooper, 1988).

The appraisal as eustress and as distress are not mutually exclusive (Lazarus & Folkman, 1984), they can coexist and occur simultaneously to the same stressor (Folkman, 1997; McGowan, Gardner, & Fletcher, 2006). In fact, this led Escamilla, Rodríguez and González (2009) to investigate the possible profiles of individual stress appraisal. As a result, they found three different configurations of individual stress appraisal: (a) medium levels of the appraisal of both distress and eustress, (b) low levels of both distress and eustress, and (c) high levels of distress appraisal and low levels of eustress appraisal (Escamilla, et al., 2009). We believe that the constructs of distress and eustress appraisal conceptualized and operationalized at the individual level have their analogical functionally isomorphic constructs at the group level (Chan, 1998). The different configurations of shared distress and eustress appraisals could give way to distinct stress climate configurations, that, in turn, could have different outcomes for well-being (satisfaction, burnout, engagement, general psychological health) of the members of the teams. The purpose of the paper is to analyze the profiles of stress climate in work teams and its characteristics and outcomes at the individual level. It goes in line with the suggestion of Tucker, Sinclair and Thomas (2005), encouraging to investigate whether groupal attachment-related constructs which they understood as affective organizational commitment, job engagement, and turnover intentions have emergent properties considered outcomes of other group-level processes (e.g. stress climate), antecedents of other group-level outcomes, or antecedents of other individual-

level processes.

The Concept of Work Climate

The phenomenon of work climate is understood as a shared appraisal of the members of a work unit (Rousseau, 1988; Reicher & Schneider, 1990) and it can be described by aggregated individual data (Lehman, Greener, & Simpson, 2002). Specifically, *aggregate* climate means individual perceptions averaged at some identifiable unit of formal organization that, in turn, require consensus in perceptions (Rousseau, 1988). The construct of *climate* was initially developed on the basis of the Lewinian person-situation interaction. In that way, the cognitive appraisals (James & James, 1989) and the individual descriptions (Rousseau, 1988) of the context in which the person is a part form a “*distinctive patterns of collective feeling and beliefs*” developed by team members as a result of the interaction process with their physical and social setting (Katz & Kahn, 1978, p. 50). Thus, perceptions are crucial for the concept of climate (Rousseau, 1988). Climate may exist at different descriptive levels (e.g. team) as it is experienced by all individuals in an organization (Rousseau, 1988). At the work team level of analysis, climate perceptions have been recognized to have impact on individual affective responses (González-Romá, Peiró, Subirats, & Mañas, 2000). Climate has usually been conceptualized as a molar construct that makes reference to the organizational goals and the suitable means to attain them (e.g., see Hershberger, Lichtenstein, & Knox, 1994). However, the construct of climate has recently been extended to embrace a more specific focus (Carr et al., 2003), and refer to a more particular profiles of climates.

Climate of Stress as a Shared Appraisal of Stressors

To have meaning, climate needs a referent (Hayes, Bartle, & Major, 2002;

Prichard & Karasick, 1973) as it serves as an umbrella concept for specific topics where perceptual measures are the keystone (Rousseau, 1988). Depending on social or situational factors (Burke, Borucki, & Hurley, 1992), there are “climates for *something*” (Schneider & Reichers, 1983). For example, researchers have examined climate for learning (Nixon, 1991), safety (Zohar, 1980), diversity (Hurtado, Carter, & Kardia, 1998), innovation (Abbey & Dickson, 1983), service (Schneider, Bowen, Ehrhart, & Holcombe, 2000), or climate for initiative (Baer & Frese 2003, Michaelis, Stegmaier, & Sonntag, 2010). The research on climate in organizations deals with multidimensional assessment of situational perceptions (Rousseau, 1988) and “it is reasonable to suggest that any and all organizational process might be usefully studied and understood through a climate lens” (Schneider et al., 2013, p. 366-367). Analyzing organizational processes from a climate approach “could yield new insights into the contextual processes variables that are their correlates and perhaps their antecedents” (Schneider et al., 2013, p.367). All this emphasizes the importance of focusing on something specific.

By the same token, in the area of stress, Peiró (2001) endorsed an alternative collective approach to this phenomenon and emphasized the essential role of the inter-subjective experience of stress. He underlined the importance of considering social groups as the basic unit of analysis for the study of stress and highlighted that in order to understand the subjective experience of stress a person should not be separated from their context. Similarly, several researchers suggested a link between the collective phenomena and work stress experiences (Cox, 1990). In this vein, Lansisalmi, Peiró, and Kivimaki (2000) proposed a concept of stress climate which they understood as a phenomenon that emerges depending on whether the members of a particular group in the organization perceive a certain event as stressful. The impulse for examining stress climate consisted of the nomothetic perspective to stress that presumes that groups of

individuals will perceive and react to similar work environments in a consistent way, regardless of individual differences (Bliese & Halverson, 1996). This approach constitutes a basis for studies to deal with the groups' appraisal to stress, their reaction to the work contexts (Tucker, Sinclair, & Thomas, 2005), and the issue of how shared stressors (i.e. stress climate) affect individual stress-response processes (Bliese & Jex, 1999). All this casts doubt on the universality of the individual approach to stress in different work contexts (Abbott, 1990), suggests that stress experiences vary across social contexts (Meyerson, 1994) and pinpoints the importance of groups when studying the process of stress (Aspinwall & Taylor, 1997; Bacharach & Bamberger, 2007; González-Morales, Rodríguez, & Peiró, 2010; Haslam & Reicher, 2006). However, this collective perspective to stress shared by a determined group of persons has not been paid sufficient attention (Peiró, 2001). In fact, most research has focused on individual perceptions (e.g., Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Grandey, Fisk, & Steiner, 2005; Heuven, Bakker, Schaufeli, & Huisman, 2006).

Also, until recently, in the limited number of studies that measured stress climate at work, the emphasis was put predominantly on the distress appraisal, considering the negative appraisal of stress and work pressure (D'Alleo & Santangelo, 2011), perceived strain or role overload (Lehman, Greener, & Simpson, 2002), just as in the research on individual stress appraisal. Distress is understood as being related to negative feelings and disturbed bodily states (Selye, 1956) and with the appraisal of stressors as a source of harm or threat/anticipation of harm (Lazarus, 1993). The complementary positive side of stress climate has not been sufficiently explored. For example, the Lansisalmi, Peiró, and Kivimaki's (2000) consideration of stress climate does not take into account the positive psychology approach which posits that there can be a more positive vision of stress climate. The appraisal of eustress is connected with positive feelings and

healthy bodily states (Selye, 1956) and the appraisal of demands as opportunities or challenges that the individual feels confident about overcoming by effectively mobilizing and implementing coping resources (Lazarus, 1993, see also Simmons & Nelson, 2007). Some authors propose that organizational environments become meaningful for the employees through a process of “valuation” (Brown & Leigh, 1996) that, in addition to the negative, include also positive side of organizational milieu. For example, they demonstrate that the employees can perceive and interpret their organizational environments as challenging and they show that the climate of challenge is one of the dimensions of work climate (Brown & Leigh, 1996). These two complementary, positive and negative, approaches to stress should be equilibrated given that demanding work characteristics and conditions can be appraised by the individual as either threatening/taxing or as opportunities/challenges (Lazarus & Folkman, 1984). This appraisal occurs on the basis of the perceived individual resources that one possesses to cope with them (Lazarus, 1993). Moreover, the appraisal of eustress and distress can occur simultaneously as a response to the same demand (Folkman, 1997; McGowan et al. 2006) which gives way to different possible configurations of distress/eustress appraisals.

The configurations can refer to “any multidimensional constellation of conceptually different characteristics that commonly occur together” (Meyer, Tsui, & Hinings, 1993, p. 1175). The cognitive and sociocognitive processes (e.g. members’ shared interpretations) can be sources of configurations (Meyer et al, 1993) captured by typologies or taxonomies. These are “composed of a cluster of traits which do in reality hang together” (Tiryakian, 1968, p. 178) and they are “sets of different configurations that collectively exhaust a large fraction of the target population of organizations [or other social units] under consideration” (Miller & Friesen, 1984, p. 12) that can be

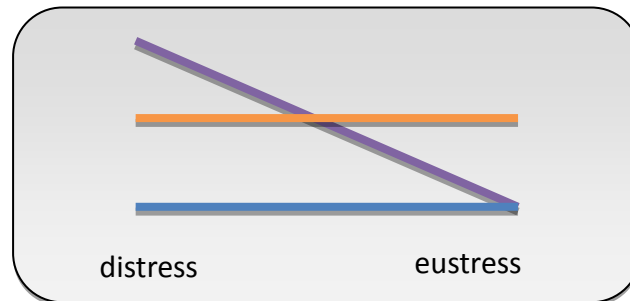
analyzed at different levels of analysis, and denoting patterns across individuals and groups (Meyer et al., 1993). Discovering typologies is essential to social theory and research (Miller & Friesen, 1984) as they organize the experience (McKinney, 1966) and establish order out of the potential chaos. Taking all the above into consideration, in this study, we include the positive and configurational approach to stress climate. Therefore, we understand *stress climate* at work as a particular configuration of *both* distress and eustress appraisal shared by the members of a particular group in the organization.

At the individual level, a study of stress appraisal configurations has been carried out by Escamilla and cols. (2009). The authors studied the distribution of the patterns of distress and eustress appraisal among Spanish social service professionals. To this end, they run cluster analyses at the individual level and found three profiles of stress appraisal configurations: (a) medium levels of the appraisal of both distress and eustress, (b) low levels of both distress and eustress, and (c) high levels of distress appraisal and low levels of eustress appraisal (Escamilla et al., 2009). We believe that the constructs of distress and eustress appraisal conceptualized and operationalized at the individual level have their functionally isomorphic constructs at the group level (Chan, 1998) and that the configurations of shared eustress and distress appraisal will yield significant profiles of climate configurations. With this in mind, we expect shared eustress and distress appraisal profiles to generate three isomorphic profiles of stress climate at the group level, analogical to those found at the individual level by Escamilla and cols. (2009). Therefore, the following hypothesis is formulated (see also Figure 1):

Hypothesis 1: *The three clusters of stress climate found at the individual level (medium in distress and eustress appraisal; low in distress and eustress appraisal; and*

high in distress and low in eustress appraisal) will replicate at the group-level yielding three isomorphic profiles of stress climate.

Figure 1. *Hypothesized patterns of stress climate*



Furthermore, different configurations of shared appraisal of stress can produce different results. Several studies noted the possible outcomes of shared perceptions for the individuals (e.g. Parker, Baltes, Young, Huff, Altmann, Lacost, & Roberts, 2003). Given that shared stress appraisal configurations (i.e. stress climate) consist of distress and eustress appraisals occurring simultaneously as a response to the same demand (McGowan et al., 2006), the consequences of these appraisals can be complex.

Individual-level outcomes of stress climate.

The appraisal of a stressful event determines its outcomes for an individual (Boswell, Olson-Buchanan, & LePine, 2004) that can be either negative or positive (Boswell, et al., 2004; Cavanaugh, Boswell, Roehling, & Boudreau, 2000). The study of the consequences of stressors has almost always considered distress leading to negative effects. In contrast, Positive Psychology perspective puts emphasis on both negative (e.g. burnout) and positive (e.g., work engagement, psychological well-being, satisfaction) effects of eustress and distress, progressively diminishing the negative research bias in the study of occupational stress (Peiró, 2008). In this way, positive

relationships have been found between the appraisal of distress and burnout (Cavanaugh et al., 2000; Crawford, LePine, & Rich, 2010; Schaufeli & Van Rhenen, 2006), negative relationships between hindrance demands (distress) and engagement (Crawford et al., 2010; Quick, Cooper, Nelson, Quick, & Gavin, 2003), satisfaction (Cavanaugh et al., 2000), and psychological well-being (Cavanaugh et al., 2000; Jamal, 1999). Also, a positive relationship was found between the appraisal of challenge (eustress) and engagement (Crawford et al., 2010; Maier, Waldstein, & Synowski, 2003), satisfaction (Cavanaugh et al., 2000), and psychological well-being (Scheck, Kinicky, & Davy, 1997).

These relationships have been usually studied at the individual level, however, “the existence of individual-level relationships may be one reason for believing that similar relationships exist at the group and organization levels” (Parker et al., 2003, p. 392). In addition to the individual perspective, a collective approach emphasizes that stress appraisal shared by the members of a team can have impact on the person-level stress outcomes (Grandey, Foo, Groth, & Goodwin, 2012) and that shared employees’ perceptions can have impact on workers’ well-being and health (Tucker, Sinclair, & Thomas, 2005). These results stem from the recent interest among the organizational researchers in the impact of group processes on individual behavior (e.g. Bliese & Britt, 2001).

Aggregate climates have often been considered to be important factors in explaining individual responses (e.g. Joyce & Slocum, 1979), and the way how the employees experience the workplace (Rousseau, 1988). Also, climate perceptions have been recognized to affect individual responses in organizations (Campbell, Dunnette, Lawler, & Weick, 1970; González-Romá, Peiró, Subirats, & Mañas, 2000). This influence on individual-level outcomes has been explained as being due to the impact

the climate has on the cognitive and affective states of the individuals (Kopelman, Brief, & Guzzo, 1990). That is why working units where work climate emerges, are a powerful source of influence for their members. Moreover, they are formed by individuals with common experiences, expertise, values, and perspectives for interpreting organizational events which make the members more likely to exert collective effects on their individual members (Tucker, Sinclair & Thomas, 2005). In order to respond to the context, the members of the team must first perceive and interpret their work setting (Carr, et al., 2003) and this cognitive evaluation can be related to psychological well-being (Cropanzano & Wright, 2001).

Parker and cols. (2003) in their comprehensive meta-analysis summarized the recent results of the studies on the consequences of the employees' perceptions of work setting and they showed that burnout, job satisfaction and job involvement, the three dimensions of work-related well-being (Rothmann, 2008), turn out to be one of the most important direct outcomes of climate at work (Parker et al., 2003). Carr and cols (2003) demonstrated the indirect effects of climate that affected individual-level outcomes of job performance, psychological well-being, and withdrawal through its impact on organizational commitment and job satisfaction. Associations have been found between the employees' perceptions of work setting and such individual-level outcomes as burnout (McIntosh, 1995), and job involvement (Brown & Leigh, 1996). Also, the relationships between climate and job satisfaction and between climate and commitment are well documented (e.g., DeCotiis & Summers, 1987; Hershberger et al., 1994; Kozlowski & Hulst, 1987; Pritchard & Karasick, 1973; Parker, Dipboye, & Jackson, 1995; Schnake, 1983; Schneider & Snyder, 1975).

In the work context, burnout is defined as "a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among

individuals who do ‘people work’” (Maslach & Jackson, 1986, p.1). It stems from a long-term imbalance between demands and resources, induced by perceptions about working conditions, such as number of hours worked, number of people worked for, lack of autonomy, workload, role stress, etc. (Schaufeli & Buunk, 2003, Spector, Dwyer, & Jex, 1988). Work Engagement means being “enthusiastically implicated and nicely occupied with the work demands” (Nelson & Simmons, 2003, p.103), and it is a persistent and pervasive affective-cognitive state defined as “a positive, fulfilling, work-related state of mind characterized by vigor, dedication and absorption” (Schaufeli, Salanova, González-Romá, & Bakker, 2002, p.79). Job satisfaction can be defined as “positive evaluative judgment one makes about one’s job or job situation” (Weiss, 2002, p. 175). It has an affective component that is “the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs” (Spector, 1997, p. 2), which is a feature of a job attitude (Brief & Weiss, 2002).

Unfortunately, in the domain of stress, the research examining contextual factors that can conduct to positive or negative outcomes is less plentiful than the research on individual factors (Bliese & Britt, 2001). However, there is evidence that show that stressors shared by the members of a group (group-level climate) have impact on the person-level stress outcomes (Grandey, Foo, Groth, & Goodwin, 2012). In this way, when one employee in a team appraises stress in a certain way, this appraisal not only influences that particular employee’s well-being, but it also saturates the work context in the whole team in such a way that it impacts well-being and health of the other workers working in this team (Tucker, Sinclair, & Thomas, 2005). It even has impact on those workers who do not experience excessive demands (Jackson, 1989; Johnson, 1989). Direct and moderator effects have been found regarding distress climate. If it comes to direct effects, individual burnout turns out to be triggered by the climate of

workload and pressure in executing tasks in call-centers operators (D'Alleo & Santangelo, 2011). Other studies, noteworthy for our study, however not directly related to it, showed that the experience of negative moral climate was found to increase moral stress (Lütznén, Blom, Ewalds-Kvist, & Winch, 2010). If moderator effects are concerned, shared stressors (i.e. stress climate) experienced by a group can generate additional demands that accumulate with the individual distress experience (Tucker et al., 2005). Specifically, there is an intensifying effect of stress climate on person-level distress appraisals as predictor of affective commitment, morale and depression (Tucker et al., 2005). The authors also found that high climate of such stressor as unpredictability intensified the negative effect of person-level quantitative workload on affective commitment and morale; high climate of interpersonal conflict intensified the negative effect of person-level work-family conflict on affective commitment; and high climate of quantitative workload and of interpersonal conflict intensified the positive effects of person-level quantitative workload on depression and the negative effect of person-level quantitative workload on morale (Tucker et al., 2005).

In the present study, we assume that higher levels of burnout will be produced in a climate in which the shared appraisal of distress is dominating. Therefore, we formulate the following hypotheses:

Hypothesis 2a: The level of individual burnout (exhaustion, cynicism and lack of personal accomplishment) will be higher in the distressed climate high in distress and low in eustress appraisal in comparison to the other two balanced profiles of stress climate.

As we can see, the predominant part of the study of work stress climate takes into account its negative side and its negative outcomes. In contrast, we believe that at

the group level, there exists an isomorphic to the individual level, shared perception of stress, viewed from the positive psychology perspective, in addition to the shared perceptions of distress. Yet, there is not sufficient research on the individual outcomes of stress climate understood as a configuration of eustress/distress appraisals for individuals. However, some similar studies can be approximated that also investigated positive climate, although they do not refer directly to the configuration of the shared appraisal of distress and eustress. Along these lines, from the positive perspective, Brown and Leigh (1996) showed that climate of challenge can be a source of job involvement, induce employees to invest greater amounts of their physical, cognitive, and emotional resources in their work that, in turn, enhances performance (Brown & Leigh, 1996). Also, certain unit-level climates prevent resource loss and, in consequence, protect from and decrease burnout (Grandey et al, 2012). For example, high climate of authenticity is found to replenish the self, buffering against depletion from self-regulating; this positive “climate of authenticity” among one’s coworkers can slow the resource “loss spiral” (Grandey et al., 2012). Also, it has been shown that a positive social climate at work can be an important factor in the prevention of burnout (Peterson, Demerouti, Bergström, Asberg, & Nygren, 2008). In a positive, “gain spirals”, job resources increase work engagement and future efficacy beliefs, and in the reversed direction, engagement and efficacy increase the availability of resources. This process continues over time so that a positive “gain spiral” model of efficacy builds up (Illorens, Schaufeli, Bakker, & Salanova, 2007). Based on these assumptions and findings commented above, we can assume that the higher levels of engagement and job satisfaction will be produced in balanced climates in which the level of shared appraisal of eustress and distressed is at the similar level, in contrast to the distressed climate. Therefore, the following hypothesis is formulated:

Hypothesis 2b: *The level of individual engagement (vigor, dedication, absorption) and satisfaction, will be higher in the balanced-moderate and balanced-low climate with moderate and low levels of eustress and distress than in the distressed climate high in distress and low in eustress.*

It is also of a special interest to observe the evolution of individual burnout, engagement and satisfaction in the different stress climate conditions. Examining individual change with repeated measures data makes it possible to assess temporal relationships between our variables of interest (Heck, Thomas, & Tabata, 2010). Given that there is no clear predominance of the negative or the positive in one of the three hypothesized profiles of climate, except for the “distressed” climate, it is difficult to foresee the specific evolution of burnout, engagement and job satisfaction in each of the profiles of climate. Therefore, the following hypotheses are formulated:

Hypothesis 3: *Over time, the level of satisfaction and engagement (vigor, dedication, and absorption) will decrease in the “distressed” climate, whereas the level of burnout (exhaustion, cynicism and lack of personal accomplishment) will increase in the “distressed” climate.* The change over time in the levels of these variables in the remaining profiles of climate is exploratory.

Method

Participants and Procedure

Participants were 603 (Time 1) and 431 (Time 2) Spanish social care services professionals from Valencian Community. This longitudinal sample was composed of

two points of data collection: the first data collection time was collected in 2007 and the second data collection time was collected around half a year after. The mortality rate in the sample was 29%. All the employees in the sample were working in teams. They were professionals from different occupations (e.g. psychologists, educators, social workers, administrative workers, and sociologists). The sample included managers, technicians, administrative and auxiliary personnel. The teams that did not have at least 3 members were eliminated from further analyses and we kept 535 subjects grouped in 82 work teams (the size of the teams ranged from 3 to 14 members) in Time 1 and 243 subjects grouped in 43 work teams (the teams ranged in size from 3 to 12) in Time 2. The average age was 37.06 ($SD = 8.25$) in Time 1 and 38.19 ($SD = 8.45$) in Time 2. The composition of our sample (81% in Time 1 and 79% in Time 2 are women) reflects the real sex distribution in the sector of social service in the region studied given that, according to the regional statistics, women constitute 87,9% employees of social services in the Comunidad Valenciana (IVE, 2010). The prevalent highest accomplished education level for the sample was graduated, 38.3% in time 1 and 21.3% in time 2. The predominant type of job level is superior technician, 52% in time 1 and 27.7% in time 2. The average seniority in the organization was of 93.30 months (7.78 years, $SD = 86.30$) in time 1 and of 108.63 months (9.05 years, $SD = 85.41$ in Time 2. The average seniority at the current position was 64.43 months (5.37 years), $SD = 5.81$ in Time 1 and of 76.30 months (6.36 years, $SD = 73.29$ (6.11 years). The McNemar Bowker test for nominal variables and repeated measures showed no significant differences in the percentages of sex distribution, different levels of education, and different types of job levels (all ps were between .62 and 1.00) between Time 1 and Time 2. The T test showed significant differences in age, average seniority in the organization and average seniority at the current position (all $ps < .001$). However, the increment in these

variables was expected, as we are dealing with repeated data collection points separated in time.

The design of the study was longitudinal and multilevel. At both time points, self-completion questionnaire was administered by the members of the research team mostly during the coordination meetings of the employees. The majority of the questionnaires were filled in and gathered on site, while in some cases they were left to the participants and collected directly from them by the psychologist about four days later. In case a questionnaire was not fully filled out, the interviewers left envelopes and stamps and asked the participants to send the questionnaires back by post. The response rate was 75%. Such high ratios are the consequence of the design of the data collection, having the authorization of the Center, of contacting each employee in an individual way and of collecting the questionnaires directly from the employees.

Variables and Their Operationalization

Stress Climate.

The shared appraisal of stress was measured using the Valencia Eustress-Distress Appraisal Scale (VEDAS, Rodríguez, Kozusznik, & Peiró, in press). The scale is composed of 20 items representing demanding situations that could be appraised as both distress and as eustress. A 6-point scale was used, ranging from 1 (clearly, it is not a source of threat) to 6 (clearly, it is a source of threat) for distress appraisal, and in a similar way from 1 (clearly, it is not a source of challenge/opportunity) to 6 (clearly, it is a source of challenge/opportunity) for eustress appraisal. The scales have good psychometric properties (α for distress = .90 and α for eustress = .86). An example of an item is “*Demands that work make on my private/social life*”. To obtain the score for the shared distress and eustress appraisals (*distress and eustress climate*), we aggregated the

individual data (Ostroff, 1993), producing group averages (Bliese & Jex, 1999; Lindell & Brandt, 2000) of individual coworkers' composite score for distress and eustress appraisals. In order to justify aggregation of individual responses, the Average Deviation Index (ADI) (Burke, Finkelstein, & Dusig, 1999; Burke & Dunlap, 2002; Dunlap, Burke, & Smith-Crowe, 2003), the Intraclass Correlation Coefficient (ICC1) (James, 1982), were calculated and the ANOVA analysis was run. The results will be commented in the results sections.

Burnout.

To measure burnout we used the Spanish version (Salanova, & Schaufeli, 2000) of the Maslach Burnout Inventory - General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996). The scale has 16 items, and a response scale from 0 (never) to 6 (every day). The three factors of Burnout have been used in the analyses: Emotional Exhaustion (5 items, $\alpha = .89$), Cynicism (5 items, $\alpha = .72$) and Lack of Efficacy (6 items, $\alpha = .82$) revealing good internal consistency. An example of the item is "*I feel emotionally drained by my work*".

Work Engagement.

Work Engagement was assessed with the "shorter version of the Utrecht Work Engagement Scale" (UWES-9), reduced to 9 items by the authors (Schaufeli, Arnold, Bakker, & Salanova, 2006). The scale ranges from 0 (never) to 6 (every day). The three factors of the UWES-9 have been used in the analyses: Vigor (3 items, $\alpha = .82$), Dedication (3 items, $\alpha = .87$), and Absorption (3 items, $\alpha = .70$). Thus, the measure is characterized by satisfactory psychometric values. An example of an item is "*At my job, I feel strong and vigorous*".

Satisfaction.

Satisfaction was measured by the tool adapted by Bravo, García, Peiró y Prieto (1993) in the framework of the research project Work Socialization of Youth (WOSY). The scale has 5 items and ranges from 1 (*not satisfied*) to 5 (*extremely satisfied*) and Chronbach's $\alpha = .57$. An example of an item is "*The amount of pay I receive for the work I do*".

Demographic variables.

Demographic variables included age, sex, marital status, highest grade of regular education completed, job level, seniority in the organization, and seniority at the current position. Age was coded in years. Sex was coded by dummy variables Male (0) and Female (1). Marital status was coded as Single (1), Married or living as a couple (2), Widower (3), and Separated or divorced (4). Highest grade of regular education completed was coded: Primary or secondary school (1), Graduated (2), University or college degree (bachelor) (3), Doctorate (4), and Other (5). Job level was coded in five categories: Management (1), Superior Technician (2), Technician assistant (3), Administrative personnel (4), and Auxiliary personnel (5). Seniority in the organization and seniority at the current position were both coded in months.

Data Analysis

Preliminary analyses.

The data from subjects with more than 50% missing data was deleted in T1 and T2. For the remaining respondents, missing values were imputed using the information from the item mean. Item-mean imputation provides good estimates of the reliability of measures as long as the numbers of respondents with missing items are 20% or less

(Downey & King, 1998). Also, the teams with less than three members were eliminated from the analysis. In that way, 60 cases were eliminated in Time 1 and 185 cases were eliminated in Time 2.

Outlier analysis.

The observations on each clustering variable (Distress and Eustress Appraisal) that exceeded 3.00 SDs from the mean were eliminated from the analysis. In that way, we eliminated 9 more cases in Time 1 and 4 cases in Time 2, leaving a final sample of 535 employees in T1 and 243 employees in T2.

Variable Standardization.

The variables that were used to form the clusters were standardized to Z-scores ($M = 0$, $SD = 1$) to equalize the contribution of each variable in the cluster analysis (Hair & Black, 2000).

Test of the Hypotheses.

The cluster analysis was conducted separately for the two related samples (Time 1, 535 subjects in 82 work teams, and Time 2, 243 subjects in 43 work teams). To test the replicability of the clusters, the kappa statistics was computed to assess agreement between the nearest assigned cluster in T2 and the original clusters in T1. Moreover, the cluster profiles found were then assessed using Analysis of Variance (ANOVA) and post hoc analyses on the T1 sample to see whether there exist any differences between the clusters if the outcome variables are concerned. Also, t-test statistics for related samples were computed to check whether there is any significant change in the level of outcome variables in the different profiles of climate in T1 and T2. Finally, using the panel data gathered at T1 and T2, Linear Mixed Modelling was executed to assess how the

outcome variables (engagement, burnout and satisfaction) change over time in the three clusters of stress climate at work, controlling for gender, age, individual level of distress and eustress appraisal. Linear Mixed Modeling (LMM) is an alternative to the univariate analysis of variance (ANOVA) or multivariate analysis of variance (MANOVA), however, the LMM is a more flexible approach when there may be missing data, varying occasions of measurement, and more complex error structures (Heck, Thomas, & Tabata, 2010).

Results

Stress Climate Classification

Teams were clustered based on their similarity on the distress and eustress appraisal measured by the Valencia Eustress-Distress Appraisal Scale (VEDAS, Rodríguez, et al., in press). We selected this analysis to enable the identification and further validation of meaningful typologies or configurations of the shared appraisal of distress and eustress (distress and eustress climate). Two subscales (the appraisal of distress and the appraisal of eustress) were used as a grouping variable. Prior to the procedure in identifying clusters, the mean ADI coefficients were calculated for both Distress Appraisal and Eustress Appraisal variables on the first sample. The mean of ADIs for Distress scale was 1.02 ($SD = .21$), and the mean ADIs for Eustress scale was .94 ($SD = .20$). Following the formula of (Burke et al., 2003, p. 160), in our case, the cut-off point for the mean ADIs is 1, (see Chapter 4.5.2. for the calculation of the mean ADI). Also, the perceptual agreement is considered to be of main concern with respect to climate. Therefore, the ICC(1) was calculated to give a foundation for deciding whether the perceptions can be aggregated to provide a descriptor of climate (James, 1982). The ICC(1) for Distress and Eustress Appraisal were .06 and .09

respectively, which means that they both fell into the acceptable range of aggregation which is .00-.50 (James, 1982). Finally, we run the analysis of variance (ANOVA) to check for the existence of significant differences among the teams in the level of Distress and Eustress Appraisal. The results indicate that these differences are statistically significant: Distress Appraisal ($F(81,453) = 1.432, p < .05$) and Eustress Appraisal ($F(81,453) = 1.655, p = .001$). Taking all these data into consideration, the mean ADIs, the ICC(1) and the ANOVA results support the aggregation of the Distress and Eustress Appraisal to create the variables Climate of Distress and the Climate of Eustress at the team level.

In order to cluster the variables, an inductive procedure was used, based on the mathematical similarity for the appraisal of distress and eustress. As recommended (Blashfield & Aldenderfer, 1988; Hair & Black, 2000), we followed a two-step procedure in identifying cluster groups. First, agglomerative hierarchical cluster analysis was executed for the first sample (T1, $n = 535$) to obtain the initial cluster groupings and the cluster means for each of the clusters. Squared Euclidean distance was used to measure the distance between the shared appraisal of distress and eustress in work teams, and Ward's (1963) minimum variance method, which is generally considered to be efficient and tends to derive more equally sized groups (Ward, 1963), was used to form the clusters. The number of clusters was selected based on the rescaled distances evident in the hierarchical cluster dendrogram, the percentage change in agglomeration coefficients at each step of the cluster analysis, and conceptual considerations (Hair & Black, 2000). A 3-cluster solution generated 3 distinct pattern profiles. In the second step of the cluster analysis, the cluster means (centroids) from the hierarchical 3-cluster solution were submitted to a nonhierarchical, k-means cluster analysis in the same sample to refine the initial cluster solution, and to reduce the risk of

cluster misassignment common with hierarchical cluster methods (Blashfield & Aldenderfer, 1988).

Figure 2 shows the final k-means cluster profiles expressed in standardized scores for the sample (in T1). Standard scores are very easy to interpret and they eliminate the artifacts of measurement or the mean of raw scores that reflect arbitrary units of scaling (Nunnally & Bernstein, 1994, p. 117-118). Cluster names were based on the predominant appraisal (eustress or distress) in the work team or on the similar level of both of them.

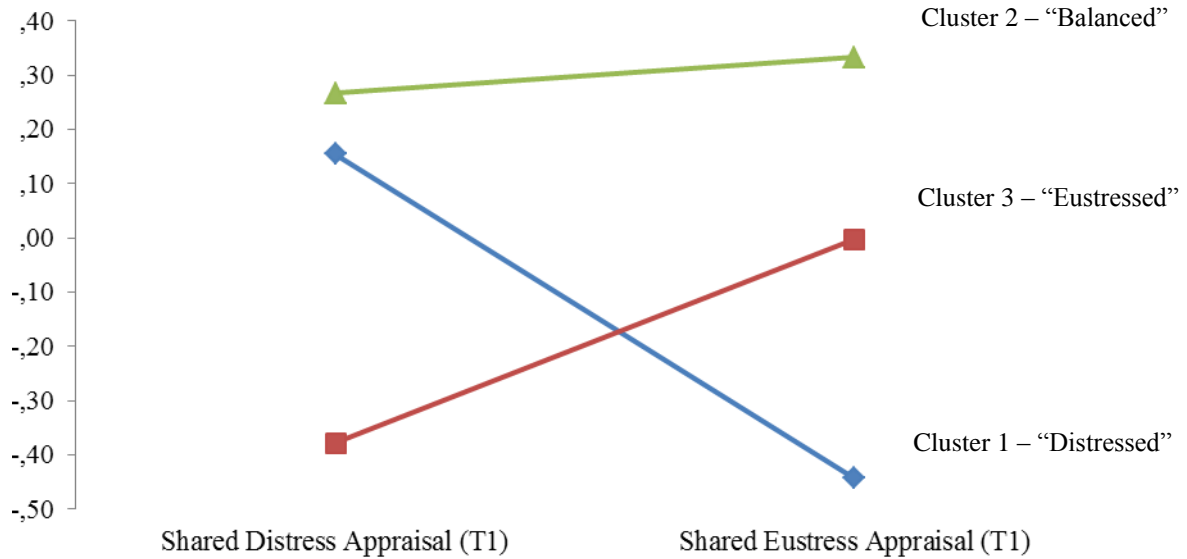
Cluster 1: Distressed. This cluster reported shared distress appraisal levels about .46 SDs above the sample mean and shared eustress appraisal about 1.28 SDs below the sample mean. The level of shared distress appraisal was among the highest levels whereas the shared eustress appraisal was the lowest levels for the sample. The Distressed cluster comprised 27% of the sample (21 teams).

Cluster 2: Balanced. This cluster reported shared distress appraisal levels about .78 SDs above the sample mean and shared eustress appraisal about .91 SDs above the sample mean. The levels of shared distress and eustress appraisal were among the highest for the sample. The Balanced cluster comprised 29% of the sample (23 teams).

Cluster 3: Eustressed. This cluster reported shared distress appraisal levels about .74 SDs below the sample mean and shared eustress appraisal about .20 SDs above the sample mean. The level of shared distress appraisal was among the the lowest for the sample whereas the shared eustress appraisal was moderate. The Distressed cluster comprised 44% of the sample (35 teams).

The clusters ranged in size from 21 to 35 work teams.

Figure 2. *Three-cluster solution, k-means non-hierarchical cluster analysis. Standardized.*



McIntyre and Blashfield’s (1980) nearest-centroid cross-validation technique was used to test the stability, or replicability, of the k-means cluster solution across the two samples. The nonhierarchical, k-means cluster analysis was repeated for the second related sample (T2, $n = 243$) and it a 3-cluster solution was confirmed. The cross-validation procedure involved finding the minimal distance for each work team in the Time 1 to the cluster centers of the related sample in Time 2 and assigning each work team to the nearest cluster center. The kappa measurement of agreement was .26 ($T = 5.54$, $p < .001$), showing fair agreement (Landis & Koch, 1977) between the nearest assigned cluster in T2 and the original clusters in T1.

On the basis of the result obtained, we can partially confirm the Hypothesis 1 that says that the three clusters of stress climate found at the individual level (medium in distress and eustress appraisal; low in distress and eustress appraisal; and high in dis-

tress and low in eustress appraisal) will replicate at the group-level yielding three isomorphic profiles of stress climate. At the team level, the same number of clusters of stress climate was obtained as in the study of Escamilla and colleagues (2009). However, the stress climate profiles found in the present study were differed from the clusters found by these authors at the individual level. The distressed (high in shared distress and low in shared eustress appraisal) and the balanced (similar levels of shared distress and eustress appraisal) clusters coincided with the previous findings, however, the balanced climate found in our case turned out to have higher level of distress and eustress appraisal than the balanced cluster found by Escamilla and cols. (2009). The third, eustressed (high in shared eustress and low in distress appraisal) did not coincide with the previous findings.

Demographic characteristics of clusters.

The demographic data for each cluster is displayed in the Table 1. The chi square tests were run to examine whether there are differences in the composition of the distressed, balanced and eustressed climate with respect to the demographic variables. No statistically significant differences were found if it comes to sex ($\chi^2(df) = 1.66$, $p > .05$), marital status ($\chi^2(df) = 6.22$, $p > .05$), the highest education level reached ($\chi^2(df) = 9.13$, $p > .05$), and the job level ($\chi^2(df) = 9.85$, $p > .05$). The ANOVA and post-hoc analyses showed that there are no differences between the three profiles of climate if age and seniority at current position are concerned (Tuckey's *HSD* $> .05$ in both cases). However, significant differences have been found in seniority in organization; it turns out that in the "distressed" climate seniority in organization is significantly higher than in the "balanced" climate, $M = 107.32$ months (8,94 years) and 81.63 months (6.80 years) respectively ($F = 3.08$, $p = .047$, Tuckey's *HSD* = .039), with Cohen's $d = .30$ indicating medium effect size.

Table 1.
Demographic Characteristics by Cluster

	Cluster 1 – Distressed n ≥ 137	Cluster 2 – Balanced n ≥ 133	Cluster 3 – Eustressed n ≥ 198
Age ^a	36.64 (7.30)	36.55 (8.57)	37.00 (8.34)
Sex			
Female ^b	122 (83%) _b	115 (75.7%)	43 (18.5%)
Male ^b	24 (16.3%)	33 (21.7%)	186 (80.2%)
Marital status ^b			
Single	48 (32.7%)	48 (31.6%)	64 (27.6%)
Married or living as a couple	89 (60.5%)	82 (53.9%)	145 (62.5%)
Widower	0 (0%)	2 (1.3%)	2 (0.9%)
Separated or divorced	7 (4.8%)	15 (9.9%)	16 (6.9%)
Highest education category ^b			
Primary or secondary school	18 (12.2%)	24 (15.8%)	43 (18.5%)
Graduated	56 (38.1%)	57 (37.5%)	91 (39.2%)
University or college degree (bachelor)	63 (42.9%)	53 (34.9%)	77 (33.2%)
Doctorate	1 (0.7%)	0 (0%)	3 (1.3%)
Other	6 (4.1%)	11 (7.2%)	9 (3.9%)
Job level ^b			
Management	21 (14.3%)	19 (12.5%)	28 (12.1%)
Superior Technician	90 (61.2%)	69 (45.4%)	117 (50.4%)
Technician assistant	9 (6.1%)	23 (15.1%)	22 (9.5%)
Administrative personnel	15 (10.2%)	16 (10.5%)	25 (10.8%)
Auxiliary personnel	4 (2.7%)	6 (3.9%)	6 (2.6%)
Seniority in the organization (in months) ^a	107.32 (92.40)	81.63 (77.87)	91.19 (86.74)
Seniority at the current position (in months) ^a	71.49 (72.38)	57.92 (61.23)	64.26 (71.28)

Note. N = 535. Because of missing data, *n* sizes ranged: Distressed = 137–146; Balanced = 133–148; Eustressed = 198–229. ^aMeans and standard deviations (in parentheses) reported. ^bGeometric means and percentage of the sample (in parentheses) reported.

Cluster Profiles.

The means for the variables for the three clusters and the results of the ANOVAs are presented in the Table 2 and Figure 3. The highest levels of Exhaustion, Cynicism, and Lack of Personal Accomplishment (at the liberal significance level) were found in the “distressed” team climate (for Exhaustion $p < .05$, for Cynicism, $p = .06$, and for Lack of Personal Accomplishment $p = .10$). The post-hoc analyses showed that there were significant differences in the levels of exhaustion between the “distressed” and

“eustressed” climate ($M = 2.81$ and 2.40 , respectively, Tuckey’s $HSD = .42$, $p < .05$, Cohen’s $d = .33$, medium effect size) and in the level of cynicism between the “distressed” climate and the “eustressed” climate ($M = 1.75$ and 1.49 respectively, Tuckey’s $HSD = .26$, $p = .05$, Cohen’s $d = .24$, medium effect size). There have been also found marginally significant differences in the lack of efficacy level between “distressed” and “balanced” climate ($M = 1.58$ and 1.36 , respectively, Tuckey’s $HSD = .22$, $p < .10$, Cohen’s $d = .25$, medium effect size). These results confirm the Hypotesis 2a that says that the level of individual burnout (exhaustion, cynicism and lack of personal accomplishment) will be higher in the distressed climate high in distress and low in eustress appraisal in comparison to the other two balanced profiles of stress climate.

Table 2.

Means, Standard deviations and differences between the three clusters in the means of the variables

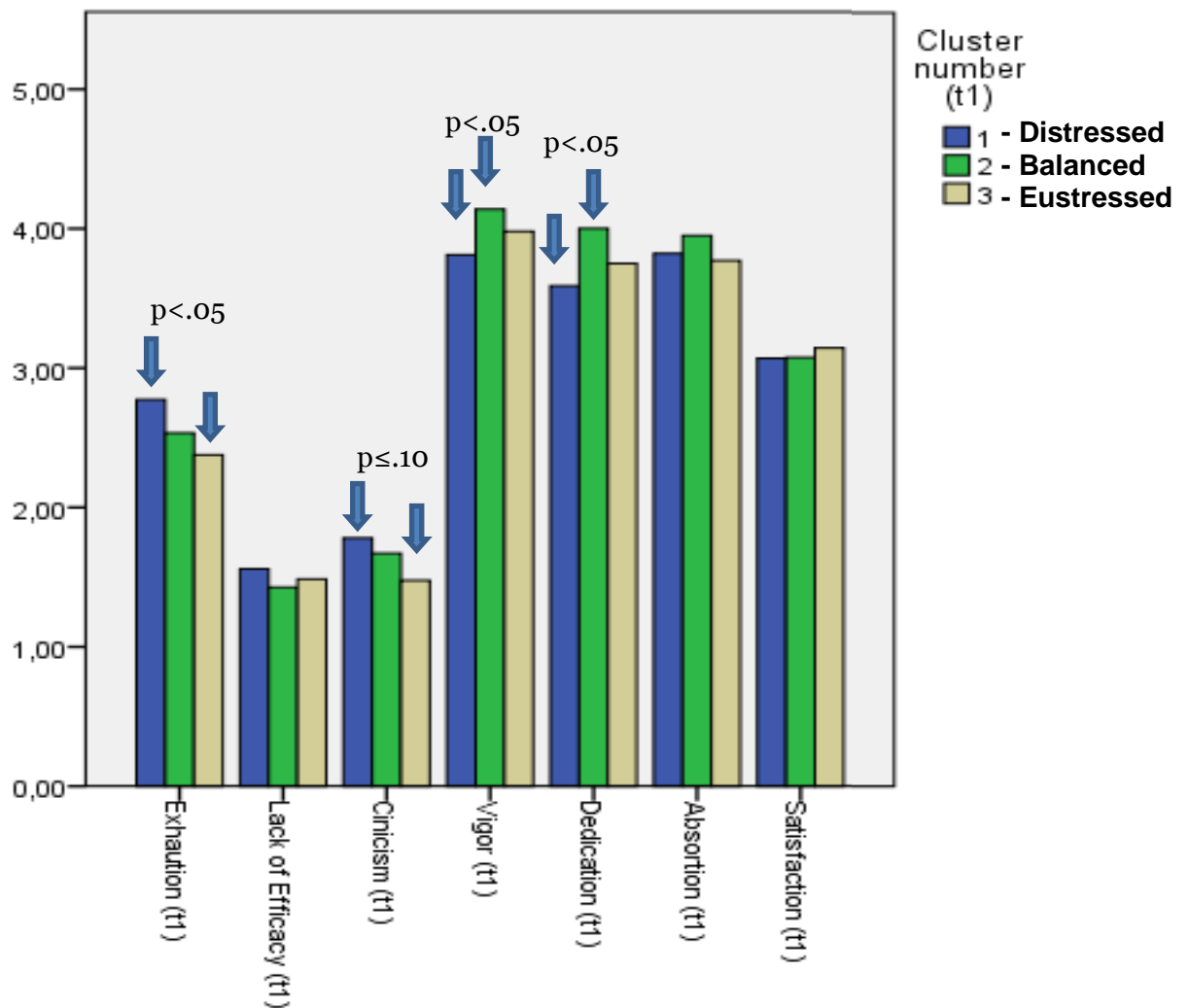
	Cluster 1 – Distressed $n \geq 137$		Cluster 2 – Balanced $n \geq 133$		Cluster 3 – Eustressed $n \geq 198$		F	Sig.
	M	SD	M	SD	M	SD		
Satisfaction	3.03	.54	3.07	.58	3.11	.58	.84	.433
Exhaustion	2.81**	1.27	2.58	1.38	2.40*	1.24	4.66	.01
Lack of personal accomplishment	1.58	.94	1.36	.85	1.42	.91	2.30	.101
Cinicism	1.75´	1.11	1.62	1.04	1.49´	1.04	2.76	.064
Vigor	3.80*	1.12	4.14*	1.07	4.03	1.19	3.47	.032
Dedication	3.59*	1.34	4.00*	1.26	3.82	1.30	3.86	.022
Absortion	3.81	1.12	3.94	1.14	3.89	1.09	.54	.581

Note. Because of missing data, n sizes ranged: Distressed = 137–146; Balanced = 133–148; Eustressed = 198–229.

If it comes to the three dimensions of engagement, the level of Vigor was significantly higher in the balanced climate in comparison to the distressed climate

(Tuckey's $HSD = .34$, $p < .05$, Cohen's $d = .29$, medium effect size) and the level of Dedication was significantly higher in the balanced climate than in the distressed climate (Tuckey's $HSD = .42$, $p < .05$, Cohen's $d = .32$, medium effect size). Therefore, we can partially confirm the Hypothesis 2b which says that the level of individual engagement (vigor, dedication, and absorption), satisfaction, and psychological well-being will be higher in the balanced climates with moderate and low levels of eustress and distress than in the distressed climate high in distress and low in eustress.

Figure 3. Differences between the three clusters in the means of the outcome variables.



The Evolution of Outcome Variable Levels in Clusters over Time.

The means of the variables in Time 1 and in Time 2 are summarized in the Table 3. A t-test analyses were carried out to assess whether the levels of the outcomes variables in Time 2 differed from their levels in Time 1. As we can observe, in the balanced climate there was a significant increase over time in Lack of Personal Accomplishment ($p < .01$, Cohen's $d = .40$, medium effect size), and a significant decrease in Vigor $p < .01$, Cohen's $d = .37$, medium effect size), Dedication ($p < .05$, Cohen's $d = .25$, medium effect size) and Absorption ($p < .05$, Cohen's $d = .28$, medium effect size). In turn, in the eustressed climate there was a significant increase over time in Satisfaction ($p < .05$, Cohen's $d = .19$, small effect size), but also a significant increase in Cynicism ($p < .05$, Cohen's $d = .15$, small effect size), a marginally significant increase in Lack of personal accomplishment ($p = .08$, Cohen's $d = .16$, small effect size) and a marginally significant decrease in Vigor ($p = .08$, Cohen's $d = .10$, small effect size).

Table 3.
Related-sample T test

	Profile of Climate	Mean	Standard Deviation	t	df	Sig. (bilateral)
1 - "distressed"						
Pair 1	Satisfaction (T1) -	3.10	.51			
	Satisfaction (T2)	3.11	.58	-.09	78	.93
Pair 2	Exhaustion (T1) -	2.84	1.26			
	Exhaustion (T2)	2.73	1.21	.84	79	.40
Pair 3	Lack of P. Accomplishment (T1) -	1.62	.96			
	Lack of P. Accomplishment (T2)	1.63	.91	-.09	75	.93
Pair 4	Cinicism (T1) -	1.81	1.10			
	Cinicism (T2)	1.81	1.17	.05	79	.96
Pair 5	Vigor (T1) -	3.78	1.22			
	Vigor (T2)	3.75	1.14	.22	79	.83
Pair 6	Dedication (T1) -	3.53	1.41			
	Dedication (T2)	3.40	1.23	.97	79	.34
Pair 7	Absorption (T1) -	3.82	1.14			
	Absorption (T2)	3.64	.93	1.36	79	.18

Table 3. (continued)
Related-sample T test

	Profile of Climate	Mean	Standard Deviation	t	df	Sig. (bilateral)
2 - "balanced"						
Pair 1	Satisfaction (T1) -	3.08	.58			
	Satisfaction (T2)	3.16	.58	-1.45	64	.15
Pair 2	Exhaustion (T1) -	2.50	1.28			
	Exhaustion (T1)	2.55	1.05	-.39	64	.70
Pair 3	Lack of P. Accomplishment (T1) -	1.43	.79			
	Lack of P. Accomplishment (T2)	1.76	.87	-3.14	62	.00
Pair 4	Cinicism (T1) -	1.68	1.07			
	Cinicism (T2)	1.77	1.00	-.76	64	.45
Pair 5	Vigor (T1) -	4.14	1.03			
	Vigor (T2)	3.76	1.02	2.95	64	.00
Pair 6	Dedication (T1) -	4.01	1.19			
	Dedication (T2)	3.72	1.15	2.13	64	.04
Pair 7	Absorption (T1) -	3.92	1.06			
	Absorption (T2)	3.62	1.07	2.34	64	.02
3 - "eustressed"						
Pair 1	Satisfaction (T1) -	3.18	.56			
	Satisfaction (T2)	3.29	.59	-2.35	127	.02
Pair 2	Exhaustion (T1) -	2.40	1.20			
	Exhaustion (T1)	2.51	1.24	-1.10	131	.27
Pair 3	Lack of P. Accomplishment (T1) -	1.55	.98			
	Lack of P. Accomplishment (T2)	1.71	.99	-1.77	119	.08
Pair 4	Cinicism (T1) -	1.49	.99			
	Cinicism (T2)	1.72	1.21	-2.48	131	.01
Pair 5	Vigor (T1) -	3.91	1.16			
	Vigor (T2)	3.76	1.15	1.75	131	.08
Pair 6	Dedication (T1) -	3.74	1.25			
	Dedication (T2)	3.65	1.16	1.05	131	.29
Pair 7	Absorption (T1) -	3.73	1.09			
	Absorption (T2)	3.65	1.11	.83	131	.41

Note. Because of missing data, *n* sizes ranged: Distressed = 76-80; Balanced = 63-65; Eustressed = 120-132.

Furthermore, in order to assess how the outcome variables (engagement, burnout and satisfaction) change over time in the three profiles of stress climate at work, Linear Mixed Modelling was run. The Wald *Z* test suggested that growth in the levels of cynicism vary significantly across individuals (Wald $Z = 2.91$, $p < .01$). Regarding the

variables that might explain variability in growth rates among individuals, the interaction time*cluster in case of Cynicism and Exhaustion is significant at $p < .05$ ($\beta=.12$, $p = .038$ for Exhaustion and $\beta=.12$, $p < .019$ for Cynicism; see Figure 5 and Figure 6). We can observe that, over time, in case of Exhaustion and Cynicism there exists a significant tendency towards the mean in all three climate clusters. The levels of Exhaustion and Cynicism decreased in distressed climate, whereas they increased in eustressed climate. In the balanced climate they maintained a similar level. The significant differences in the change in the levels of the outcome variables over time across the three profiles of climate are illustrated in the Figures 4-6. These results can be described as floor effect and ceiling effect, given that the levels of Exhaustion and Cynicism remain the highest in the distressed and the lowest in the eustressed climate in Time 1 and Time 2. Also, the level of Satisfaction increased significantly over time in eustressed climate, in comparison to the other two profiles of climate ($\beta=.047$, $p = .06$, see Figure 4). Taking into account these results, we can only partially confirm the Hypotheses 3 that says that over time, the level of satisfaction and engagement (vigor, dedication, and absorption) will decrease in the “distressed” climate, whereas the level of burnout (exhaustion, cynicism and lack of personal accomplishment) will increase in the “distressed” climate. The change over time in the levels of these variables in the remaining two profiles of climate is exploratory.

Also, other variables may possibly explain the variability in the growth rates between individuals. Significant direct effects were found between (a) Gender ($\beta = .21$, $p = .036$), individual Distress Appraisal ($\beta = .30$, $p < .001$), the profile of climate to which a person belonged in Time 1 ($\beta = -.24$, $p = .010$) and Exhaustion; (b) Age ($\beta = .01$, $p = .002$), Time ($\beta = -.28$, $p = .021$), Individual Distress Appraisal ($\beta = .20$, $p < .001$), the profile of climate to which a person belonged in Time 1 ($\beta = -.21$, $p = .007$) and

Cynicism; (c) Time ($\beta = -.22, p = .032$), Individual Eustress Appraisal ($\beta = -.09, p = .017$) and Lack of Personal Accomplishment; (d) Gender ($\beta = .20, p = .027$), Individual Eustress Appraisal ($\beta = .14, p = .002$), Individual Distress Appraisal ($\beta = -.18, p < .001$) and Vigor; (e) Individual Eustress Appraisal ($\beta = .14, p = .002$), Individual Distress Appraisal ($\beta = -.13, p < .001$) and Absorption; (f) Time ($\beta = -.16, p = .007$), Individual Distress Appraisal ($\beta = -.06, p = .002$) and Satisfaction; as well as between (g) Gender ($\beta = -.07, p = .038$), Individual Distress Appraisal ($\beta = -.06, p < .001$) and Psychological Well-Being.

Figure 4. Change over time in individual Satisfaction among three clusters of stress climate.

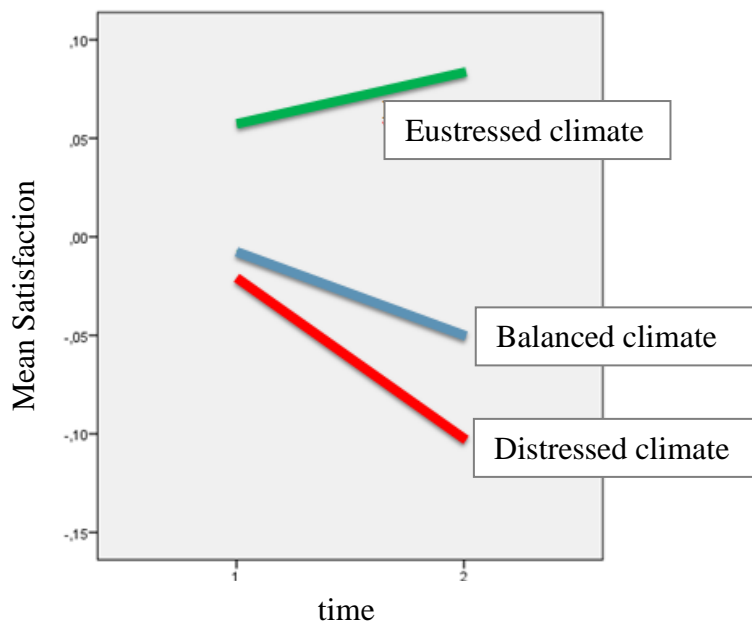


Figure 5. Change over time in individual Exhaustion among three clusters of stress climate.

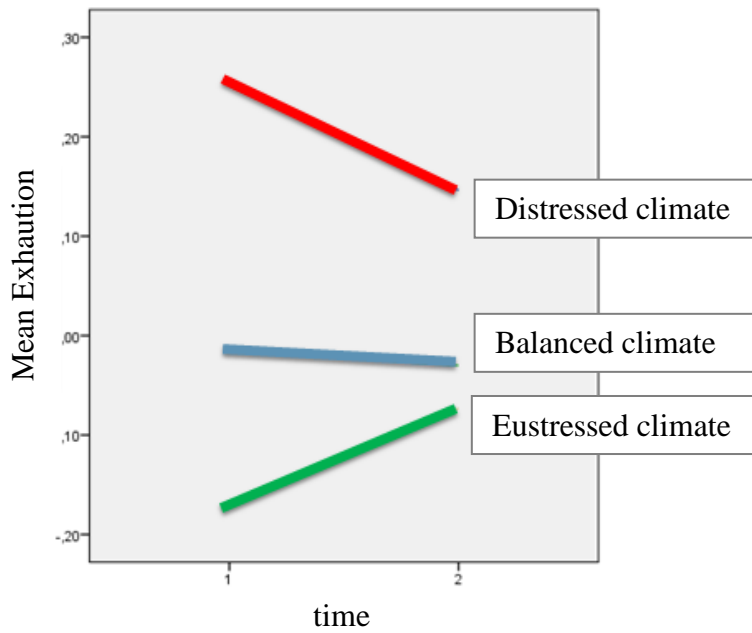
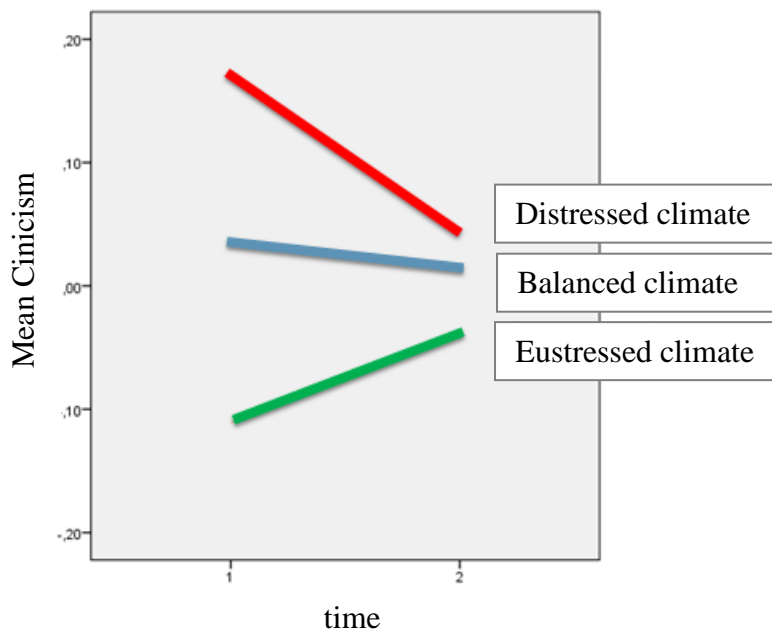


Figure 6. Change over time in individual Cynicism among three clusters of stress climate.



Discussion

The present study aimed at analyzing the profiles of stress climate in work teams and its characteristics and outcomes at the individual level where *stress climate* is understood as a particular configuration of distress and eustress appraisal shared by the

members of a particular group in the organization.

Three profiles of stress climate were found: distressed, eustressed and balanced. The distressed climate was characterized by the highest level of Exhaustion and Cynicism and Lack of Personal Accomplishment, and by the lowest levels of Vigor and Dedication. The eustressed climate was characterized by the lowest levels of Exhaustion, and Cynicism. The balanced climate was characterized by the highest levels of Vigor and Dedication and the lowest level of Lack of Personal Accomplishment. Additionally, a significant difference was found in the composition of the climate profiles; in the “distressed” climate, in which the level of shared distress is high and eustress appraisal is low, seniority in organization was significantly higher than in the “balanced” climate in which levels of both distress and eustress are high. Over time, the level of Satisfaction increased in the eustressed and in the balanced climates, whereas it decreased over time in the distressed climate. The levels of Exhaustion and Cynicism presented a trend of regression towards the mean in all three climate clusters.

The appearance of the three clusters of stress climate at work confirms the hypothesized existence of stress appraisal configurations at the team-level. In the previous research (Escamilla et al., 2009), three clusters stress appraisal were also found at the individual level, however they differed to some extent from the clusters found in the current study. This difference may be explained by the fact that stress climate is specific to every organization. It might follow similar patterns, however, can vary slightly depending on the particular character of the organization.

The fact that the distressed climate was formed by employees with a significantly higher seniority level in comparison to the balanced climate may signify that those persons who had more time to experience more negative events in this

organization (e.g. failures) may tend see work as a greater source of distress. Needless to say, the same persons had also more time to experience positive experiences, however, the research shows that memory for negative information is better than for positive or neutral information (Denburg, Buchanan, Tranel, & Adolphs, 2003).

The results confirm that demanding work characteristics and conditions can be appraised by the individual as either threatening/taxing or as opportunities/challenges (Lazarus & Folkman, 1984), which may occur simultaneously as a response to the same demand (McGowan *et al.* 2006). The study addresses a recent interest in the impact of group processes on individual behavior (e.g. Bliese & Britt, 2001) and shows that perceptions can be shared and that they are crucial for the concept of climate (Rousseau, 1988). Climate perceptions turn out to have impact on individual responses (González-Romá, Peiró, Subirats, & Mañas, 2000) which goes in line with previous theoretical and empirical data (e.g. Joyce & Slocum, 1979; Rousseau, 1988; Campbell, Dunnette, Lawler, & Weick, 1970) and endorses the importance of the multilevel approach to stress (Bliese & Jex, 2002). The results show a link between the collective phenomena and work stress experiences (Cox, 1990), which supports that stress experiences can be affected by the broader organizational and societal context (Lämsisalmi, Peiró, & Kivimäki, 2000).

The present study underlines the importance of studying the positive side of occupational stress in addition to its negative side (Peiró, 2008), according to the Positive Psychology perspective concentrated on improving quality of life and preventing pathology (Seligman & Csikszentmihalyi, 2000). Higher levels of Exhaustion and Cynicism in the distressed cluster, lower levels of these variables in the eustressed cluster as well as lower levels of Vigor and Dedication in the distressed cluster confirm the previously found positive relationships between the appraisal of

distress and burnout (Cavanaugh et al., 2000; Crawford et al., 2010; Schaufeli & Van Rhenen, 2006) and negative relationships between hindrance demands (distress) and engagement (Crawford et al., 2010; Quick et al., 2003). Somehow surprising is the fact that the highest levels of Vigor and Dedication appeared in the balanced cluster, which we can try to interpret as a necessity for an “optimal” appraisal of stress for a person to be engaged at work, appraising simultaneously the challenges but also the possible threats of a demanding situation. In that case, appraising a stressing situation to some extent as a threat could serve as alert that something adverse is happening, given that exaggerated positive perception of work threats may not always be desirable, as it might be related to workaholism and threaten health (Kofta, 2003).

The result that satisfaction increased over time in eustressed cluster and decreased in the distressed cluster goes in line with the previous research that found relationships between the appraisal of challenge (eustress) and satisfaction (Cavanaugh et al., 2000). However, we obtained an interesting result that, over time, the levels of Exhaustion and Cynicism decrease in distressed climate and increase in eustressed cluster. Although counterintuitive at the first sight, these results can be interpreted in the light theoretical framework of coping process in which a person engages when dealing with the effects of stress. On the one hand, in the distressed climate, the threats of a demanding situation are appraised by a person that leads a person to undertake coping strategies to handle the effects of stressors. In the long run, these coping strategies decrease the initial levels of Exhaustion and Cynicism. On the other hand, in the eustressed climate, due to the predominant positive appraisal of stressors, a person sees a demanding situation mostly as a challenge and opportunity which makes them ignore the threats. In that situation, a person does not feel a need to undertake any coping strategies that means lack of protection against the effects of threat related to the

situation. Therefore, in the long run, the person can suffer from an increased level of Exhaustion and Cynicism.

Contributions, Limitations and Conclusions

In general, the present study makes some important contributions. First, it adds information to a scarce literature examining contextual factors that can ameliorate or reduce the negative impact of stressors (Bliese & Britt, 2001) and puts emphasis on the collective perspective to stress that, to the best of our knowledge, has not been paid sufficient attention. Second, it puts emphasis on both positive (i.e. satisfaction, work engagement) and negative (burnout) effects of eustress and distress, progressively diminishing the negative research bias in the study of occupational stress (Peiró, 2008). Finally, it addresses a suggestion to investigate the effects that shared stressors (i.e. stress climate) exert on the relationships between other person-level variables (Tucker et al., 2005).

Some limitations assure a wary interpretation of the results of this study. Firstly, in our study we used a convenience sample and future research should carry out a study on stress climate using broader samples. Also, other variables that could have influence on the level of the outcome variables have not been taken into account (i.e. coping). Future research should consider addressing this issue.

In general terms, the results of the present study confirmed that stressors shared by the members of a group (group-level climate) have impact on the person-level stress outcomes (Grandey et al., 2012) and that individual well-being turns out to be related to the climate of job strain, workload and pressure (D'Alleo & Santangelo, 2011). In support of the previous considerations, evidence has been found that certain profiles of positive climate at work can diminish emotional exhaustion (Schaufeli et al., 1996) and

that a supportive social environment can be a buffer against the effects of stressors (Cohen & Wills, 1985).

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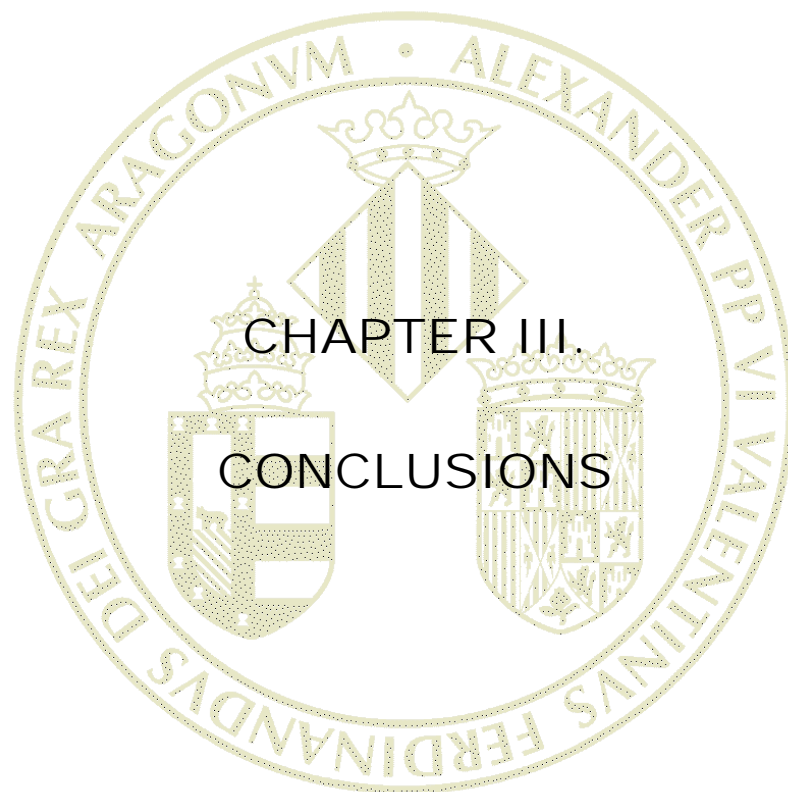
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CHAPTER III.

CONCLUSIONS

General Discussion

In the five articles forming part of the present thesis, the underlying concepts for the studies and their results have been commented in detail. This last chapter, with an overarching approach, integrates the most remarkable results, draws main theoretical and practical implications, highlights major limitations, proposes new possible directions for research, and draws main conclusions.

In this thesis, we analyze the phenomenon of work stress from a cognitive perspective (Lazarus & Folkman, 1984) and from the positive psychology approach (Seligman & Csikszentmihayi, 2000). Its main objective was to develop and validate a measure of eustress and distress appraisal using the classical (CTT) and modern (Rasch Analysis) approaches to measurement, and to study the invariance of stress appraisal-outcomes model for well-being in two European countries. Simultaneously, the objective of this thesis was to show that eustress and distress appraisals can be shared and yield different types of stress climate, which have impact on individual well-being.

In order to add to the current knowledge on the process of work stress and to respond to the objective of this thesis, first, we tried to raise the attention of the academics about the new directions in the research on work stress. Second, we presented a study of development and validation of a scale to measure stress appraisal (the Valencia Eustress Distress Appraisal Scale was, VEDAS) using the classic approach to measurement. Third, this study was broadened by applying modern Rasch Analysis. Fourth, a cross-cultural study was proposed in which a model of stress appraisal outcomes was compared in two different countries. Finally, the last study explored different configurations of shared appraisal of stress (stress climate) and their

outcomes. These topics have been reflected in the five articles forming part of this thesis.

The **Article 1** indicates new directions in the research on work stress and it constitutes an attempt to diffuse the new positive approach to stress in the academic context. It underlines the necessity of broadening research in the stress domain and to include some new proposed research topics, such as: (a) the positive approach to stress that builds on the cognitive perspective to stress and considers both a positive and a negative appraisal of stress; (b) the positive and negative outcomes of stress appraisal; (c) the role of culture in the process of stress; and (d) the impact of the ratio of eustress-distress appraisal in terms of well-being. The Article 1 sets the common background for all the subsequent articles, since the topics it tackles are then undertaken later in the empirical studies that are presented in the Articles 2 to 5.

The **Article 2** attempts at responding to the necessity of studying stress appraisal phenomenon from both positive and negative perspectives presented in the Article 1. To this end, in the Article 2 a new questionnaire to measure eustress and distress appraisal (Valencia Eustress Distress Appraisal Scale, VEDAS) is developed within the framework of the Classical Test Theory (CTT) approach. This new measure permits a simultaneous assessment of distress and eustress appraisal. It is compact and its items are generic enough to be used in different professions. Until now, the proper measurement of eustress and distress appraisal at work has not been possible to a great extent given that there have been no measures that would permit for a simultaneous assessment of eustress and distress appraisal of the same stressful situations in different occupations. The Article 2 provides us with psychometric properties of the new questionnaire and it leads us to conclude that VEDAS is a robust measure of eustress-distress appraisal.

Furthermore, the **Article 3** provides a new perspective to test development through the application of Rasch Rating Scale Analysis to the development and validation of the VEDAS. This modern approach offers much more information than the CTT, while at the same time recognizing and offering solutions to the shortcomings of the CTT. The Article 3 comprises additional information on the VEDAS scale, such as the calibration of the items which not only helps us to improve the measure, but also gives us important facts about the construct of stress appraisal and the importance of different sources of eustress and distress.

A synthetic look at the **Articles 2 and 3** shows that both provide us with consistent information on the dimensionality of the VEDAS, each of them from a different – classical and modern – approximation to measurement. Both articles highlight that the VEDAS has one dominant dimension and the secondary one(s). On the one hand, in the Article 2 we can see that VEDAS is found to be essentially unidimensional, with one dominant dimension (Relationships) and three secondary dimensions (Personal Accountability, Home-Work Balance, and Workload). In the RA, the importance of the items of the “Relationships” distress factors found in the Article 2 was shown, given that all five of them belonged to the group of the most important sources of distress. On the other hand, the additional analysis of dimensionality within RA in the Article 3 suggests the existence of two subdimensions of eustress and distress related to: (a) relationships with, support of and influence on other people and (b) workload, situations involving others outside work, or the home-work balance. Although the number of the suggested dimensions of eustress and distress vary across the studies, we can see a clear overlap between the results of the CTT and RA. Both studies suggest that stressful situations connected to relationships should be considered a distinct type of a source of distress and eustress. Given that the Article 3 showed that

the impact of the possible additional component on the subjects' responses was relatively weak, we need future scales to provide more information on this respect by expanding the items covering these aspects.

The **Article 4** addresses the issue of the positive approach to stress first raised by the Article 1 and common to all of the articles of this thesis. It gives empirical evidence to the importance of the positive psychology approach to stress by showing the positive and negative outcomes of stress, as a result of its appraisal. The main contribution of the Article 4 to the previous articles is three-fold. First, the use of structural equation modeling makes it possible to observe the relationships between several variables of interest at the same time; It means that we are able to observe how the two predictor variables (eustress and distress appraisal) relate simultaneously with work engagement and burnout. This kind of research approaches us to the real-life situation where different factors and phenomena mix and occur at the same time. Second, the Article 4 addresses the issue of the role of culture in the process of stress raised in the Article 1. In order to explore this issue, it compares the levels of stress appraisal and its outcomes in two different cultures and adds important information on the invariance of the model of stress appraisal outcomes in two different cultures. Finally, it proposes a model of stress appraisal outcomes invariant across the two countries. Some interesting differences in the levels of distress and eustress appraisals and in burnout and engagement in the two countries are pointed out and discussed.

As a final point, the **Article 5** broadens the individual perspective described in the previous articles and, inspired by the previous results presented in the Article 4 on the role of social context (culture) on stress appraisal, it examines the role of shared appraisal of stress in a different type of social context at work which are work teams. The Article 5 provides empirical data on the possible influence of a collective construct

– the climate of stress – while controlling for the effect of individual eustress and distress appraisal. In this article, we show that stress climate is a distinct phenomenon, which exists at the group level and has influence over the individual level of the employees' well-being. The Article 5 refers to and provides us with empirical evidence referring to some issues raised in the Article 1, such as the existence of different configurations of eustress and distress appraisals, which in this article are found to exist at a collective level. It shows us that there can exist different configurations (or *mixtures*) of collective eustress and distress appraisals, and show that there are optimal proportions of positivity to negativity necessary to affect the level of the different components of individual well-being (burnout, engagement, and satisfaction). Especially, it is shown that there are positive outcomes of a collective appraisal of stress that is a mix of positive and negative appraisal (called here *balanced* climate of stress) and which can be considered optimal to attain certain outcomes for individual well-being. In this article, we can also see that stress consequences can have a dynamic character and unfold over time.

The **Article 4 and 5** together provide us with a description of how stress process depends on the social context of two kinds: national culture and work teams' climate. Both climate and culture influence the way people experience and define their work settings (Schneider et al., 2013). However, the concepts on culture and climate in organizations that have been identified by Reichers and Schneider (1990) as characterized by parallel but not overlapping tracks of studies. In this thesis, by focusing on these two aspects of social context, we are bridging these two concepts. The results show us that they both have impact on the levels of the stress appraisal outcomes (i.e. burnout and work engagement), which means that the levels of these outcomes will vary

depending on the national culture of the organization or according to the type of stress climate in work teams.

Theoretical Implications

The development and validation of a questionnaire that measures the appraisal of eustress and distress, as well as the study of the consequences of the outcomes in terms of well-being of the individual and collective appraisal of eustress have given way to new interesting possibilities for research in the area of work and organizational psychology. These new possibilities translate into some clear theoretical implications of the present doctoral thesis.

First, the Article 1 indicates new research topics that should be addressed in the future, such as the role of positive appraisal in the process of stress, the possible existence of a ratio of positive to negative appraisal of stressors that ensures positive outcomes at work, as well as the impact of the cultural context in the process of stress.

Second, the results of the Articles 2 and 3 support the idea that the newly developed VEDAS questionnaire could be a particularly effective instrument in the evaluation of the appraisal of distress and eustress. It provides a commensurable measure of both eustress and distress appraisal, which makes it possible to study their coexistence in the work context. A closer look at stress where we can discern its positive and negative appraisal would make it possible to find answers to new research questions, not only about the negative outcomes of distress, but also about the positive outcomes of eustress. Also, the VEDAS scale could help us to provide more comprehensive responses to the following questions: How can stressful situations be dealt with? Does positive appraisal of stressors always provoke positive outcomes for individuals? In which circumstances it is not recommended to stimulate positive

appraisal of demanding situations? All this information may be useful in deciding at what point enthusiasm should be moderated by prudence when undertaking challenges that may also involve risks.

Third, the use of Rasch Analysis in the Article 3 gives an example of benefits of the application of the RA in work and organizational psychology, it suggests that RA should be used more frequently in this field, and provides work and organizational psychologists a comprehensive guide on how to apply the RA in organizational research. The work shows also to what extent collapsing response options based on empirical data can help in improving the instrument, instead of merely assuming theoretically the optimum number of response alternatives (which is a common practice), in increasing its clarity and in ensuring a better functioning of a response scale. The Article 3 gives therefore an example of a good practice in test development and encourages researchers in the work and organizational area to apply RA in their research.

Fourth, the results of the hierarchy of the sources of eustress and distress draw our attention to the fact that the items least frequently identified both as sources of distress and eustress refer to home-work interference and the situations that occur outside work. Future research could clarify the issue of the role of work-life spillover in the appraisal of distress and eustress at work.

Fifth, the present thesis shows that more research is needed to study the complex relationship between the dimensions of culture, the perception, and the meaning of stressors in different countries. When studying work stressors, it is crucial to take into consideration both contextual factors related to work, as well as the persons' evaluation of the stressors. In this line, it is suggested that the emphasis should be put on the

positive experiences connected to stress at work (Luthans, 2002), in addition to the dominant negative approach to stress. It is also important to analyze the relationship between stressor appraisals and their interaction on employees' well-being and health. Cross-cultural studies should explicitly consider operationalizations of national contexts, such as public expenditure on social services, labor market flexibility policies, and the unionization of the labor force or general working conditions.

Sixth, the results also raise a debate about the role of the negative ingredient in stress appraisal which may be necessary to initiate coping with stress process and about the possible optimal configuration of distress and eustress appraisal that would lead to most favorable results at work (e.g. work engagement). For example, it has been suggested that an exaggerated positive appraisal of work challenges can be related to workaholism and be a threat for health (Kofta, 2003).

Seventh, the present thesis makes a strong emphasis on the importance of multilevel research in the area of work stress and it emphasizes that the future research on the phenomenon of work stress should take into consideration not only the individual perspective, but also the context of the group, which has a significant impact in the process of stress.

Finally, it also suggests that the functioning of the process of coping in situations that are predominantly appraised as challenge or as threat should be examined. A question that arises in the present work on the basis of the results commented in the Article 5 is whether the dominant appraisal of eustress makes individuals ignore the threats connected to the same stressful situations and, in consequence, make them not employ any coping strategy, which in turn results in negative long-term consequences for individual well-being. Future studies should find the answer to the question on

whether an ingredient of negative appraisal of stress is always necessary to launch the coping process in order to ensure the best outcomes for the individual well-being.

Practical Implications

On the basis of the results presented in this thesis, some practical implications can be drawn that refer to the issue of coping with stress and managing stress at work to obtain healthier and more efficient individuals and work teams.

The new questionnaire VEDAS provides us with the information on the perception of opportunity/challenge and of threat of the same stressor. Using this questionnaire in managerial practice can improve our knowledge of the individual experiences of stress at work and empirically ensure that stressful situations can be simultaneously appraised as threats and as challenges. In this way, it is possible to analyze the advantages and disadvantages of each type of stressful situations. The information on whether the appraisal of distress always accompanies the appraisal of eustress can be of great relevance for supervisors, managers, and leaders, who have to be cautious when encouraging the appraisal of challenges and when stimulating an excessive positive appraisal of stress (which often is a common practice in some organizations), without taking into account the negative consequences of a disproportionate eustress appraisal. It is important to be aware that under certain conditions challenges may become threatening. An excessive appraisal of eustress may be detrimental because, as we can presume on the basis of the results presented in the Article 5, it may impede individuals to employ preventive strategies that help in decreasing the negative effects of distress appraisal which frequently occurs at the same time as the appraisal of eustress, when a person is facing demanding situations.

Also, the existence of the positive and negative consequences of stress appraisal implies that in practice the emphasis should be put on human virtues and on showing employees how to appraise stressful encounters in a more positive way. Revealing the hierarchy of stressors can help us to discern those stressful situations that would require most attention and on which it is more important to concentrate and which are the most important to prevent or stimulate. The Article 3 indicates the types of situations that, when appraised in a more positive way, could have the greatest impact of employees well-being. Therefore, it invites to make a shift from trying to identify the possible sources of distress and repairing damage to encouraging positive appraisal of the stressors and promoting human virtues at work (Luthans, 2002). Especially, practitioners' attention should be drawn to the fact that situations that refer to discrimination, favoritism or alienation of employees should be avoided as they induce one of the highest levels of distress appraisal and one of the lowest levels of eustress appraisal. In the same time, the employees should be given more opportunities to be accountable for their own actions and be responsible for important decisions, given that personal accountability at work turns out to be a great source of eustress. Also, this thesis shows that special importance should be given to stressful events that occur at the workplace, given that those demanding situations that concern work but occur outside work and involve people outside work are normally considered a minor source of distress and eustress. This information is good news for managers as they generally have much more influence on what concerns employees' work environment than on what happens in their lives outside work.

Furthermore, the results show that cross-cultural comparisons that involve stress are especially relevant for the expats and for supervisors managing multicultural teams. For instance, the results presented in the Article 4 suggest that Spanish managers who

work in Poland should take into account that Polish workers may have a tendency to suffer higher levels of burnout than Spaniards when exposed to the same stressful situations. This fact may be induced by cultural and contextual factors. This information can be crucial to help managers understand the importance of designing such environment at work that would create more situations that could be appraised as challenges and opportunities instead of threats according to their cultural background and teach the employees how to perceive these events as greater challenges.

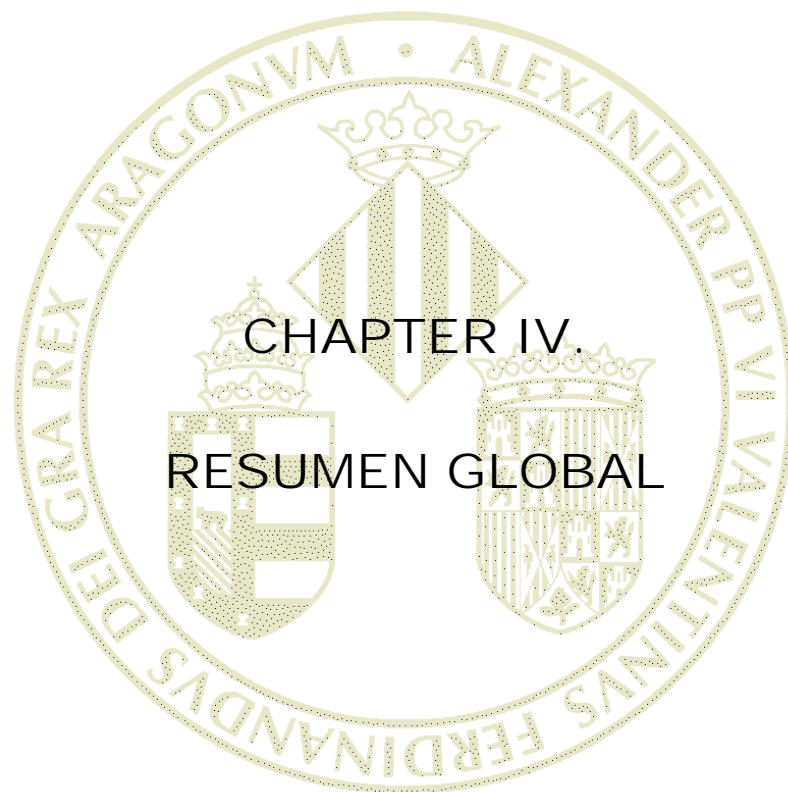
All in all, the issues commented above open a variety of possibilities for the design of training courses in the organizations, oriented at stress management at work and teamwork in order to benefit from the positive side of stress appraisal and cultural diversity at work, so the employees learn from their colleagues more positive ways of perceiving work and the fundamental role of management as meaning creators and protectors of the quality of working life (Peiró & Rodríguez, 2008). The orientation towards training, the degree of autonomy and the relationships subordinate-supervisor should adapt to different cultures with the aim of attaining their maximum efficacy (Gelade et al., 2008). These training actions should take into account work teams as a whole, since, as Article 5 shows us, work teams are powerful units that, though collective processes and collective meanings, have impact on individual well-being.

Final Conclusions

In general, the following main contributions can be drawn from the five articles comprised in this thesis:

1. The present thesis underlines the importance of examining the process of stress from the cognitive perspective to stress and from the positive psychology approach.

2. It provides a new questionnaire that allows measuring simultaneous appraisal of distress and eustress.
3. It uncovers the hierarchy of stressful situations at work, indicating the stressors that are more and less frequently evaluated as distress and eustress.
4. It constitutes an example of the use of the RA applied to the area of work and organizational psychology.
5. It shows that the direction and the strength of the relationships between the distress and eustress appraisal and its outcomes (burnout and work engagement) are invariant across two countries (Poland and Spain).
6. It provides information about the differences between the levels of burnout and work engagement in the two countries.
7. It shows that the distress and eustress appraisal can be shared by the members of a team and give place to different types of stress climate, which have consequences for the well-being individuals in the team.
8. It underlines the importance of a multilevel approach to the phenomenon of work stress.



CHAPTER IV.
RESUMEN GLOBAL

En los cinco artículos que forman parte de la presente tesis, se han comentado los conceptos subyacentes así como los resultados obtenidos. En este apartado, se resaltan los objetivos de la presente tesis, la metodología utilizada, así como las conclusiones generales que se pueden extraer en base a los estudios realizados.

Objetivos

En esta tesis analizamos el fenómeno del estrés laboral desde la perspectiva cognitiva (Lazarus y Folkman, 1984) y desde el enfoque que nos ofrece la psicología positiva (Seligman y Csikszentmihayi, 2000). El objetivo de la presente tesis ha sido desarrollar y validar una nueva medida de la percepción de eustrés y distrés tanto desde la Teoría Clásica del Test (TCT) como desde una perspectiva moderna (Análisis de Rasch, AR) y estudiar la invarianza de la percepción del modelo de las consecuencias de la percepción del estrés para el bienestar en dos países europeos. Simultáneamente, se ha intentado demostrar que las percepciones de eustrés y distrés pueden ser compartidas y producir diferentes tipos de clima de estrés, los cuales tienen impacto sobre el bienestar individual.

En la parte introductoria de esta tesis, así como en los cinco artículos, hemos comentado algunas cuestiones relacionadas con el fenómeno del estrés que presentaban lagunas en el conocimiento actual sobre el tema. Estas carencias han dado lugar a los objetivos del presente trabajo que se especifican a continuación.

Objetivo General de Investigación 1: *Construir una medida de la percepción del estrés que conceptualice la percepción de distrés y eustrés, donde las mismas situaciones puedan ser fuentes tanto de distrés como de eustrés, y que sea adecuada para utilizar en diferentes profesiones.*

Objetivo Específico de Investigación 1.1.: *Construir una medida de percepción de distrés y eustrés desde la perspectiva de la TCT.*

Objetivo Específico de Investigación 1.2.: *Aplicar el Análisis de Rasch para obtener la información adicional sobre el constructo del estrés y sobre esta escala.*

Se ha intentado responder al Objetivo Específico de Investigación 1.1. en el Artículo 2, en el cual se desarrolló la escala VEDAS, un cuestionario nuevo para medir la percepción del eustrés y distrés, desde la perspectiva de la TCT. Por otra parte, en el Artículo 3, se abordó el Objetivo Específico de Investigación 1.2., aplicando el Análisis de Rasch a la escala VEDAS, desarrollada en el Artículo 1.

Objetivo General de Investigación 2: *Construir un modelo de la percepción de estrés en el que se pueda ver cómo la percepción de eustrés y distrés se relacionan con el burnout y el compromiso en el trabajo.*

Objetivo Específico de Investigación 2.1.: *Comprobar la invariancia del modelo de las consecuencias de la percepción del estrés en dos culturas diferentes.*

Estos objetivos han sido abordados en el Artículo 4, el cual es un estudio transnacional, en el que se han estudiado las consecuencias de la percepción del eustrés y del distrés para el bienestar en dos países europeos.

Objetivo General de Investigación 3: *Examinar si el clima de estrés en los equipos de trabajo se puede caracterizar por diferentes grados de percepción de eustrés y distrés.*

Objetivo Específico de Investigación 3.1.: *Comprobar si en los equipos de trabajos pueden existir diferentes tipos de clima de estrés.*

Objetivo Específico de Investigación 3.2.: *Examinar la evolución de las consecuencias en términos del bienestar individual de los diferentes tipos de clima de estrés.*

El Artículo 5 se ha centrado en responder a estos objetivos generales y específicos. Con este fin, en este artículo se han analizado los tipos de clima de estrés existentes, sus consecuencias para el bienestar individual, y su evolución en el tiempo.

Con el fin de llevar a cabo los estudios y responder a los objetivos de investigación comentados anteriormente, se ha empleado la metodología comentada a continuación.

Metodología

En este apartado, se resaltaré el diseño de los estudios presentados en los artículos comprendidos en esta tesis, la muestra utilizada para llevarlos a cabo, el procedimiento empleado, así como los análisis usados para obtener los resultados.

Diseño de los estudios.

El diseño de los estudios va a ser comentado según los Artículos que forman parte de esta tesis.

En el Artículo 2 se ha desarrollado y validado el nuevo cuestionario VEDAS que permite medir la percepción de distrés y eustrés. Por lo tanto, en la fase del desarrollo de los ítems, y de las escalas de distrés y eustrés, se ha planteado un diseño transversal, con la estrategia de recogida de datos de un momento temporal. Luego, en la fase de refinamiento del cuestionario, se ha empleado tanto una estrategia transversal como un diseño longitudinal. Utilizando una nueva muestra relacionada, se han examinado las

propiedades psicométricas del nuevo cuestionario. Con el fin de evaluar su estabilidad en el tiempo, hemos utilizado una estrategia longitudinal de recogida de datos con dos momentos temporales de recogida de datos. El primero (T1) tuvo lugar en el año 2007 y el segundo (T2) se efectuó 6 meses más tarde, aproximadamente.

En el Artículo 3 se ha empleado el Análisis de Rasch para mejorar la interpretación de la escala VEDAS, validar la escala utilizando la aproximación moderna a la teoría del test, así como para examinar si las opciones de respuesta del VEDAS funcionan adecuadamente. Con este fin, se ha utilizado un diseño transversal.

El Artículo 4 tuvo como propósito investigar si existe invariancia del modelo de las consecuencias de la percepción de eustrés y distrés en dos países europeos. Con esta finalidad, se utilizó una estrategia transversal, pero en dos países diferentes.

Finalmente, el Artículo 5 analiza la existencia de distintos tipos de clima de estrés en los equipos de trabajo, así como sus características. Con este objetivo, se ha empleado un diseño transversal. También, el Artículo 5 describe las consecuencias para el bienestar a nivel individual de los diferentes tipos de clima, y su evolución en el tiempo. Por lo tanto, se incluye otra vez una exploración longitudinal de las relaciones entre las variables a nivel de grupo (clima de estrés) y las variables a nivel individual (burnout, compromiso en el trabajo y satisfacción).

Muestra.

La muestra utilizada en esta tesis está compuesta por empleados de servicios sociales de la Comunidad Valenciana en España y de la Voivodía Silesiana en Polonia. El uso de la muestra varía según el artículo, dependiendo del propósito de cada estudio.

A continuación, se detalla la muestra utilizada en los artículos que forman parte de esta tesis.

Muestra española.

Los cuestionarios han sido completados en dos momentos temporales. En el Tiempo 1 (T1), la muestra estaba compuesta por 603 profesionales de Servicios Sociales españoles, que incluyen, entre otros psicólogos, educadores, trabajadores sociales, administrativos, psicólogos educativos y sociólogos. Todos los participantes eran de nacionalidad española, predominantemente de nivel socio-económico medio (INE, 2010). El rango de edad fue de 20 a 70 años ($M = 37.52$, $dt = 8.62$). La composición de sexo de nuestra muestra de conveniencia - 109 fueron hombres (18.4%) y 484 mujeres (81.6%) - reflejaba la distribución real del sexo en el sector de servicios sociales en la región estudiada. De acuerdo con las estadísticas regionales, las mujeres constituyen 87.9% de los empleados en los servicios sociales en la Comunidad Valenciana (IVE, 2010). En el Tiempo 1, 800 sujetos fueron invitados a participar en el estudio, por lo tanto, la tasa de respuesta fue 75%. Una tasa de respuesta tan alta se debe al contacto directo con los sujetos y al procedimiento directo de recogida de datos.

En el Tiempo 2 (T2), todos los sujetos que participaron en el T1 fueron invitados a cumplimentar el cuestionario otra vez, 6 meses más tarde, aproximadamente. Una muestra de 431 sujetos completó el cuestionario. 73 (20.9%) fueron hombres, 276 fueron mujeres (79.1%), y 82 participantes no especificaron su sexo. El rango de edad fue de 21 a 65 años ($M = 38.49$, $dt = 8.55$). Todos los participantes eran de nacionalidad española, predominantemente de nivel socio-económico medio (INE, 2010).

Muestra Polaca.

En el Artículo 4, además de los datos recopilados en la Comunidad Valenciana en España, en el año 2008 se recogieron datos de los empleados de servicios sociales en la Voivodía Silesiana en Polonia, una región con una situación económica similar a la Comunidad Valenciana. De hecho, las dos regiones están ubicadas alrededor de la media de ingresos *per cápita* en sus países (INE, 2009; GUS, 2010). La muestra polaca, de forma similar a la muestra española, estaba compuesta por profesionales tales como psicólogos, educadores, trabajadores sociales, administrativos, psicólogos educativos y sociólogos. El promedio de edad en la muestra fue de 34.13 ($dt = 8.59$). La muestra estaba compuesta por 31 hombres (21.8%) y 111 mujeres (78.2%) (5 participantes no especificaron su sexo). Esta composición, de nuevo, refleja la distribución real del sexo en los servicios sociales en la región estudiada. Teniendo en cuenta las características atribuidas a Polonia y España en el momento temporal en el que los datos fueron recogidos (entre el año 2007 y 2008), y también que el trabajo de los empleados en los servicios sociales es comparable en diferentes países (Glazer, 2008), los profesionales de los servicios sociales en la Comunidad Valenciana y en la Voivodía Silesiana resultaron ser muestra de conveniencia de un interés especial para nuestro estudio.

Procedimiento.

Los directores de los centros de servicios sociales fueron contactados por teléfono o en persona por los miembros del equipo de investigación. Una vez confirmada su intención de participar, los directores informaron a sus empleados sobre el desarrollo del estudio y pidieron que éstos participasen, de forma voluntaria, en el proceso de recogida de datos. Una vez informados, el grupo de colaboradores formado por miembros del equipo de investigación contactó con los coordinadores de los

equipos de trabajo en las organizaciones que expresaron su voluntad de participar en el estudio, con el fin de concretar una fecha para la administración de los cuestionarios de auto-informe por los miembros del equipo de investigación. Se garantizó la anonimidad de los datos. La mayoría de los cuestionarios se completaron y recogieron en las oficinas de los empleados, durante las horas de trabajo. No obstante, si para algunos empleados resultaba imposible rellenar los cuestionarios, se les entregaban y los investigadores iban a recogerlos 4 días más tarde, aproximadamente. En caso de que esto fuese imposible, los miembros del equipo de investigación dejaban sobres con sellos y pedían a los participantes que enviaran los cuestionarios por correo. En ambos momentos temporales se empleó el mismo procedimiento. También, el procedimiento de recogida de datos utilizado en Polonia siguió los mismos pasos que la recogida de datos en el Tiempo 1 en España.

Variables utilizadas y su operacionalización.

Percepción de Eustrés y Distrés.

Para medir la percepción de estrés se ha empleado el cuestionario Valencia Eustress-Distress Appraisal Scale, desarrollado en el Artículo 2 de la presente tesis. El cuestionario está compuesto por 20 ítems que representan diferentes situaciones estresantes que podrían ser percibidas tanto como fuente de distrés como fuente de eustrés y presenta datos commensurables para ambos tipos de percepción. La escala tiene una dimensión principal (Relaciones) y tres dimensiones secundarias (Responsabilidad Personal, Equilibrio Trabajo-Familia y Carga de Trabajo), cumpliendo con los requisitos de la unidimensionalidad esencial. El VEDAS tiene una escala de respuesta tipo Likert de 6 opciones con respuesta de 1 (con toda evidencia no es una fuente de presión) a 6 (con toda evidencia es una fuente de presión) para la

percepción de distrés y de 1 (con toda evidencia no es una fuente de oportunidad/reto) a 6 (con toda evidencia es una fuente oportunidad/reto) para la percepción de eustrés. Los alfas de Cronbach en la versión española fueron adecuados para todas las dimensiones (alfas promedios fueron de .79 para distrés y de .73 para eustrés en el T1 y de .80 para distrés y de .76 para eustrés en el T2). En la versión polaca del cuestionario, la fiabilidad también fue buena, excepto en caso de la escala de la percepción de Carga de Trabajo como oportunidad/reto (los alfas promedios fueron de .77 para distrés y de .68 para eustrés), donde el coeficiente alfa indica una fiabilidad moderada. Un ejemplo de ítem es “*Tener que asumir riesgos*”.

El Clima de Estrés.

La percepción compartida del clima de estrés se midió utilizando la escala VEDAS, compuesta por 20 ítems, descrita en la sección anterior. Con el fin de obtener la puntuación para la percepciones de distrés y de eustrés (el clima de estrés), se agregaron los datos individuales (Ostroff, 1993) y se calcularon promedios a nivel de grupo (Bliese & Jex, 1999; Lindell & Brandt, 2000) de las puntuaciones totales de percepción de distrés y eustrés de los empleados individuales. Con el fin de justificar la agregación de los datos, se calculó el Índice de Desviación Promedio (AD) Burke, Finkelstein, & Dusig, 1999; Burke & Dunlap, 2002; Dunlap, Burke, & Smith-Crowe, 2003), el Coeficiente Correlación Intraclase (ICC1) (James, 1982), y se llevó a cabo el análisis de varianza (ANOVA).

Burnout.

Para medir el burnout, hemos utilizado la versión española (Salanova, & Schaufeli, 2000) del cuestionario Maslach Burnout Inventory – General Survey (MBI-

GS) (Maslach, Jackson, & Leiter, 1996). La escala tiene 16 ítems y una escala de respuesta de 0 (nunca) a 6 (siempre). La fiabilidad de la escala de burnout como puntuación global fue muy buena tanto en la muestra española como en la polaca (Cronbach's $\alpha > 0.80$ en ambos casos). Los tres factores de burnout utilizados en el Artículo 4 han mostrado una buena fiabilidad, siendo el valor promedio de los alfas de Cronbach de .81 para los tres factores de burnout. Un ejemplo de ítem es "*Debido a mi trabajo me siento emocionalmente agotado*".

Compromiso en el Trabajo.

Para medir el Compromiso en el Trabajo, hemos empleado el Utrecht Work Engagement Scale (UWES-9). El cuestionario UWES-9 (Schaufeli, Bakker, & Salanova, 2006) tiene 9 ítems y una escala de respuesta de 0 (nunca) a 6 (siempre). Cuando el Compromiso en el Trabajo fue considerado como puntuación global donde mayor puntuación indica mayor nivel de Compromiso en el Trabajo, la fiabilidad fue alta, tanto en Polonia como en España (en ambos casos el α fue alrededor de .90). Los tres factores de Compromiso en el Trabajo utilizados en el Artículo 4 han mostrado una fiabilidad satisfactoria; siendo el valor promedio de los alfas de Cronbach de .80 para los tres factores de compromiso en el trabajo. Un ejemplo de ítem es "*Soy fuerte y vigoroso en mi trabajo*".

Satisfacción Laboral.

La satisfacción en el trabajo se midió con el cuestionario de satisfacción laboral (Bravo, García, Peiró, & Prieto, 1993). La escala tiene 5 ítems y una escala de respuesta de 1 (insatisfecho) a 5 (extremadamente satisfecho). Esta medida mostró una fiabilidad

de .57 en la muestra de los empleados de servicios sociales en España. Un ejemplo de ítem es “*El sueldo o paga que recibo por el trabajo que hago*”.

Salud Psicológica.

La salud psicológica se midió utilizando la versión corta, de 12 ítems de la herramienta General Health Questionnaire-12 (GHQ-12) (Goldberg, 1992). Su escala de respuesta es de 1 (mucho menos que habitualmente) a 4 (mucho más que habitualmente) para los ítems de 1 a 6, y de 1 (nada en absoluto) a 4 (mucho más que habitualmente) para los ítems 7 a 12. Una puntuación promedia más alta en la escala significa una salud general mejor. Un ejemplo de ítem es “(durante los últimos tres meses) ¿Has sido capaz de disfrutar de tus actividades normales de cada día?” La fiabilidad de la medida es de .87 en nuestra muestra.

Análisis.

En los análisis preliminares, se calcularon estadísticos descriptivos tales como media y desviación típica. También, se obtuvieron coeficientes de correlación de Pearson (r_{xy}) para obtener información sobre la relación entre las variables.

Con el fin de responder al Objetivo 1.1. de la tesis y desarrollar y validar una nueva escala para medir la percepción de distrés y eustrés, se calcularon correlaciones ítem-ítem, ítem-escala, se llevó a cabo un Análisis Factorial Exploratorio, un Análisis Factorial Confirmatorio, y se estimaron los coeficientes alfa de Cronbach. Se utilizaron los programas PASW Statistics 19 y LISREL 8.80 (Jöreskog y Sörbom, 2006).

Para responder al Objetivo 1.2., hemos llevado a cabo el Análisis de la Escala de Respuesta de Rasch (Andrich, 1978), utilizando el programa WINSTEPS (Linacre y

Wright, 2004) Primero, se examinó el ajuste global de los datos al modelo de Rasch. Luego, se examinó el ajuste individual de los ítems y de las personas, así como el funcionamiento de la escala de respuesta. Además, se analizó la calibración de los ítems, su ubicación en la escala de intervalo y la dimensionalidad del VEDAS. Finalmente, se comprobó si existe la invariancia de la dificultad de los ítems en dos grupos divididos aleatoriamente y entre el grupo de hombres y mujeres.

Para responder al Objetivo 2 y examinar la invariancia del modelos de las consecuencias de la percepción del distrés y eustrés, se aplicó el método de ecuaciones estructurales – análisis multigrupo, utilizando el programa LISREL 8.80 (Jöreskog y Sörbom, 2006).

Finalmente, para responder al Objetivo 3, se ha llevado a cabo el análisis de conglomerados para revelar los tipos de clima de estrés en los equipos de trabajo. Además, para identificar las diferencias entre los resultados individuales (Burnout, Compromiso en el Trabajo y Satisfacción) en los diferentes tipos de clima, se llevaron a cabo Analisis de Varianza (ANOVA) con análisis post-hoc. También, para estudiar cómo los resultados individuales cambian a lo largo del tiempo en diferentes tipos de clima, se han analizado los datos con modelos lineales mixtos.

A continuación vamos a comentar las principales conclusiones obtenidas a partir de los resultados obtenidos con dichos análisis. Estas conclusiones son las que se derivan de los artículos que forman parte de la presente tesis.

Conclusiones

El Artículo 1 indica unas nuevas direcciones en la investigación en el tema del estrés laboral y constituye un intento de difundir la nueva perspectiva positiva en el

entorno académico. Este artículo subraya la necesidad de ampliar el estudio del estrés y de incluir nuevos temas de investigación, tales como: (a) la perspectiva positiva del estrés, que se basa en el enfoque cognitivo del estrés, el cual considera tanto su percepción negativa como positiva; (b) las consecuencias positivas y negativas de la percepción del estrés; (c) el rol de la cultura en el proceso del estrés; y (d) el impacto de la proporción de la percepción de distrés y eustrés para el bienestar. Estos temas se han retomado más tarde en los Artículos empíricos 2 a 5.

El Artículo 2 intenta responder a la necesidad de estudiar el fenómeno de la percepción de estrés desde una perspectiva tanto negativa como positiva, introducidas en el Artículo 1. Con este fin, en el Artículo 2 se ha desarrollado un nuevo cuestionario de la percepción de eustrés y distrés, el VEDAS (Valencia Eustress Distress Appraisal Scale) dentro del marco de la TCT. Esta nueva medida permite estudiar simultáneamente la percepción de eustrés y distrés. Es, además, una herramienta compacta y contiene ítems suficientemente genéricos para que puedan ser aplicados en diferentes profesiones. Hasta ahora, la medida adecuada de la percepción de eustrés y distrés en el trabajo no ha sido posible puesto que no había escalas disponibles que permitiesen medir simultáneamente la percepción de eustrés y distrés de las mismas situaciones estresantes, en diferentes profesiones. El Artículo 2 nos proporciona las propiedades psicométricas de esta nueva herramienta y nos permite concluir que el VEDAS es una medida robusta de la percepción de eustrés y distrés.

Por otra parte, el Artículo 3 nos proporciona información adicional sobre la escala VEDAS, gracias a la aplicación del Análisis de Rasch. El enfoque moderno en el desarrollo del test ofrece más información en comparación con la TCT y, al mismo tiempo, soluciona los problemas con los que se encuentra la TCT. El Artículo 3 ofrece

la calibración de los ítems, la cual no sólo nos ayuda a mejorar la herramienta, sino también nos da información importante sobre el constructo de la percepción del estrés

El Artículo 4 trata el tema de la perspectiva positiva al tema del estrés, comentado en primer lugar en el Artículo 1 y común para todos los artículos que forman parte de esta tesis. Este artículo proporciona evidencia empírica sobre la importancia de la perspectiva de la psicología positiva en el tema del estrés laboral y muestra sus efectos positivos y negativos, como resultados de la percepción de eustrés y distrés. Las tres aportaciones más destacables del Artículo 4 son: (a) mediante modelos de ecuaciones estructurales, se han podido observar las relaciones entre diferentes variables de interés al mismo tiempo, lo que significa que somos capaces de observar cómo las dos variables predictoras (percepción de distrés y eustrés) se relacionan simultáneamente con el burnout y el compromiso en el trabajo. Este hecho nos aproxima a la situación real que ocurre en la vida, donde diferentes fenómenos se mezclan y ocurren en el mismo momento; (b) por otro lado, el artículo retoma el tema de la posible influencia de la cultura en el proceso del estrés, comentada primero en el Artículo 1. Se comparan los niveles de percepción de estrés y sus consecuencias en dos culturas diferentes, y aporta información sobre la invariancia de dicho modelo en dos países europeos; (c) por último, el artículo comenta algunas diferencias interesantes en los niveles de eustrés, distrés, burnout y compromiso en el trabajo encontradas en los dos países.

Finalmente, el Artículo 5 amplía la perspectiva individual del estrés tratada en los artículos anteriores e, inspirado en los resultados del Artículo 4 sobre el rol del contexto social (cultura) sobre la percepción de estrés, examina el rol de la percepción compartida de estrés en un tipo diferente del contexto social – los equipos de trabajo. En

el Artículo 5 se analiza el posible impacto de un constructo colectivo (clima de estrés), controlando el efecto de la percepción de distrés y eustrés a nivel individual. En este artículo se demuestra que el clima de estrés es un fenómeno distinto, que existe en el nivel grupal y que tiene influencia sobre el nivel individual del bienestar de los empleados. El Artículo 5 se refiere a y proporciona evidencia sobre algunos temas mencionados en el Artículo 1, tales como la existencia de diferentes configuraciones de las percepciones de eustrés y distrés, los cuales han sido encontradas en el nivel colectivo. Esto nos indica que pueden existir diferentes configuraciones de eustrés y distrés colectivo, así como que existe una cierta proporción idónea de la positividad y negatividad necesaria para tener impacto en el nivel de diferentes componentes del bienestar en el trabajo (burnout, compromiso en el trabajo y satisfacción). Sobre todo, se demuestra las consecuencias positivas de la percepción colectiva de estrés en el caso de lo que hemos llamado clima *equilibrado* de estrés, y que puede ser considerada óptima para conseguir ciertos resultados para el bienestar individual. En este artículo podemos ver también que las consecuencias del estrés pueden tener carácter dinámico y evolucionar a lo largo del tiempo.

Teniendo en cuenta el contenido de los cinco artículos comprendidos en la presente tesis doctoral, se pueden extraer las siguientes conclusiones generales:

1. La presente tesis subraya la importancia de examinar el proceso de estrés desde la perspectiva cognitiva y desde el enfoque de psicología positiva.
2. Aporta una nueva herramienta para medir los niveles de la percepción simultánea de distrés y eustrés.

3. Revela la jerarquía de situaciones estresantes, indicando los estresores que son más y menos frecuentemente evaluados como distrés y eustrés.
4. Constituye un ejemplo de un uso de Método de Rasch aplicado en el área de psicología de trabajo y de las organizaciones.
5. Demuestra que la dirección y la fuerza de las relaciones entre la evaluación del distrés y del eustrés y sus consecuencias (burnout y el compromiso en el trabajo) son invariantes en dos países (Polonia y España).
6. Aporta información y explicación sobre las diferencias entre los niveles de burnout y compromiso en el trabajo en los dos países.
7. Muestra que las evaluaciones de distrés y de eustrés pueden ser compartidas dando lugar a diferentes perfiles de clima de estrés que tienen consecuencias para el bienestar de los individuos
8. Subraya la importancia de aproximar el fenómeno de estrés laboral desde una perspectiva multinivel.



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EUSTRESS AND DISTRESS APPRAISAL

Prácticamente cualquier cosa puede ser una fuente potencial de presión para alguien en un momento dado, y las personas perciben las fuentes potenciales de presión de modo diferente. La persona que dice que está “en un momento de tremenda presión” generalmente quiere decir que tiene demasiadas cosas que hacer. Pero esto es sólo una parte de la situación. Las mismas situaciones pueden suponer, para las distintas personas, una oportunidad o un reto que les ayude a crecer, desarrollarse o mejorar, ya sea personalmente o en su trabajo. Las afirmaciones que siguen son fuentes potenciales de presión o de reto. Te pedimos que las califiques según el **grado de presión** y el **grado de reto** que cada una de ellas representa para ti. Por favor, contesta utilizando la siguiente escala:

	Con toda evidencia NO lo es	Con bastante evidencia NO lo es	Con alguna evidencia NO lo es	Con alguna evidencia LO ES	Con bastante evidencia LO ES	Con toda evidencia LO ES
PRESIÓN	1	2	3	4	5	6
OPORTUNIDAD / RETO	1	2	3	4	5	6

1	Llevarme el trabajo a casa	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
2	Estar trabajando a un nivel inferior a mis capacidades	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
3	No ser capaz de “desconectar” sobre temas de trabajo en casa	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
4	La formación inadecuada para el trabajo directivo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
5	La falta de apoyo social de la gente del trabajo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
6	La actitud negativa de mi pareja hacia mi puesto de trabajo y mi carrera profesional	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
7	Tener que trabajar muchas horas al día	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
8	El conflicto entre distintas tareas y demandas de mi trabajo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
9	Las discriminaciones y favoritismos más o menos explícitos	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
10	Sentirme aislado/a	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
11	Ser infravalorado/a	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
12	Tener que asumir riesgos	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
13	La información inadecuada sobre cómo estoy haciendo mi trabajo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
14	La falta de apoyo emocional de las personas de fuera del trabajo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
15	Las demandas que el trabajo plantea en mi vida privada/social	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
16	La falta de ayuda de las personas de fuera del trabajo	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
17	Tener que afrontar situaciones ambiguas o “delicadas”	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
18	Tener que adoptar un papel incómodo (ej., tomar medidas disciplinarias rigurosas)	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
19	Tener que afrontar las consecuencias de mis propios errores	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6
20	Tener que desarrollar mi carrera a costa de la vida familiar	PRESIÓN	1	2	3	4	5	6
		OPORTUNIDAD / RETO	1	2	3	4	5	6

BURNOUT

Por favor, indica con qué frecuencia experimentas en tu trabajo cada una de las experiencias que describimos a continuación. Si nunca te has sentido así contesta '0', y en caso contrario indica cuántas veces te has sentido así teniendo en cuenta el número que aparece en la siguiente escala de respuesta (de 1 a 6).

Nunca	Casi nunca	Algunas veces	Regularmente	Bastantes veces	Casi siempre	Siempre
0	1	2	3	4	5	6
Ninguna vez	Pocas veces al año	Una vez al mes o menos	Pocas veces al mes	Una vez por semana	Pocas veces por semana	Todos los días

1	Debido a mi trabajo me siento emocionalmente agotado	0	1	2	3	4	5	6
2	Al final de la jornada me siento agotado	0	1	2	3	4	5	6
3	Me encuentro cansado cuando me levanto por las mañanas y tengo que enfrentarme a otro día de trabajo	0	1	2	3	4	5	6
4	El trabajo diario es realmente una tensión para mí	0	1	2	3	4	5	6
5	Pienso que puedo resolver con eficacia los problemas que me surgen en el trabajo	0	1	2	3	4	5	6
6	Me siento "quemado" por el trabajo	0	1	2	3	4	5	6
7	Pienso que estoy haciendo una contribución significativa a los objetivos de esta organización	0	1	2	3	4	5	6
8	Creo que desde que empecé en este puesto he ido perdiendo el interés por mi trabajo	0	1	2	3	4	5	6
9	Pienso que he perdido el entusiasmo por mi profesión	0	1	2	3	4	5	6
10	Creo que soy bueno en mi trabajo	0	1	2	3	4	5	6
11	Me siento estimulado cuando logro algo en el trabajo	0	1	2	3	4	5	6
12	Creo que he logrado muchas cosas que valen la pena en este trabajo	0	1	2	3	4	5	6
13	Sólo deseo hacer mi trabajo y que no me molesten	0	1	2	3	4	5	6
14	Creo que me he vuelto más cínico en mi trabajo	0	1	2	3	4	5	6
15	Dudo de la importancia de mi trabajo	0	1	2	3	4	5	6
16	Creo que tengo confianza en mi eficacia para alcanzar los objetivos	0	1	2	3	4	5	6

WORK ENGAGEMENT

17	En mi trabajo me siento lleno de energía	0	1	2	3	4	5	6
18	Soy fuerte y vigoroso en mi trabajo	0	1	2	3	4	5	6
19	Estoy entusiasmado con mi trabajo	0	1	2	3	4	5	6
20	Mi trabajo me inspira	0	1	2	3	4	5	6
21	Cuando me levanto por las mañanas tengo ganas de ir a trabajar	0	1	2	3	4	5	6
22	Soy feliz cuando estoy absorto en mi trabajo	0	1	2	3	4	5	6
23	Estoy orgulloso del trabajo que hago	0	1	2	3	4	5	6
24	Estoy inmerso en mi trabajo	0	1	2	3	4	5	6
25	Me "dejo llevar" por mi trabajo	0	1	2	3	4	5	6

WORK SATISFACTION

Este cuestionario hace referencia al grado de satisfacción con tu trabajo. Por favor, describe cómo te sientes en tu empleo actual rodeando con un círculo el número que consideres que representa la alternativa más adecuada. Para ello utiliza la siguiente escala:

Insatisfecho	Muy poco satisfecho	Satisfecho	Muy satisfecho	Extremadamente satisfecho
1	2	3	4	5

1	El sueldo o paga que recibo por el trabajo que hago	1	2	3	4	5
2	La forma en que mi empleo me proporciona un futuro seguro	1	2	3	4	5
3	La amistad de mis compañeros de trabajo	1	2	3	4	5
4	La competencia de mi supervisor a la hora de tomar decisiones	1	2	3	4	5
5	Globalmente, ¿cuán satisfecho estás con tu trabajo?	1	2	3	4	5

GENERAL PSYCHOLOGICAL HEALTH

A continuación encontrarás una serie de preguntas referidas a cómo te has sentido durante los últimos tres meses. Por favor, utiliza la siguiente escala para contestarlas.

Mucho menos que habitualmente	Menos que habitualmente	Más o menos como siempre	Más que habitualmente
1	2	3	4

1	¿Has podido concentrarte bien en lo que hacías?	1	2	3	4
2	¿Has sentido que estás jugando un papel útil en la vida?	1	2	3	4
3	¿Te has sentido capaz de tomar decisiones?	1	2	3	4
4	¿Has sido capaz de disfrutar de tus actividades normales de cada día?	1	2	3	4
5	¿Has sido capaz de hacer frente adecuadamente a tus problemas?	1	2	3	4
6	¿Te sientes razonablemente feliz considerando todas las circunstancias?	1	2	3	4



¿Puede el estrés ser positivo? Buscando la proporción óptima entre la percepción positiva y negativa del estrés.

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El objetivo del presente trabajo es reflexionar sobre el nuevo rumbo que se está iniciando en la investigación sobre el estrés laboral. Se pone de manifiesto la existencia de una proporción de “positividad” en la percepción del estrés que puede afectar al florecimiento, el burnout y la implicación en el trabajo. En esta relación, la cultura puede jugar un papel fundamental.

El lado negativo del estrés

El estrés laboral es uno de los grandes problemas en la actualidad. Durante más de la mitad de esta década el fenómeno del estrés ha sido considerado como algo negativo o patológico (Siegel y Schrimshaw, 2000), que amenaza el bienestar y la salud de las personas, provocando problemas psicosomáticos, accidentes o enfermedades profesionales (Peiró, 2007). El estrés laboral puede tener consecuencias peligrosas para las organizaciones en su conjunto, afectando tanto al desempeño como a la productividad de sus empleados (Pearsall et al., 2009; Wallace et al., 2009), y provocando costes laborales para las empresas (Cooper, Liukkonen & Cartwrihgt, 1996; Goetzel et al. 1998; Podsakoff et al., 2007).

¿Puede el estrés ser positivo?

A pesar de sus efectos nocivos, cada vez más, se pone de relieve que en el proceso del estrés pueden coexistir aspectos positivos. Ya desde la perspectiva transaccional planteada por Lazarus y Folkman (1984), se destacaba la importancia de cómo se percibe y evalúa la situación a la hora de determinar sus resultados (Rodríguez, 1998). Así, si las situaciones se perciben como una amenaza, es más probable que acarreen consecuencias negativas; no obstante, y de acuerdo con el enfoque de la psicología positiva, si las situaciones se perciben como un reto, como una oportunidad para desarrollarse personalmente y encontrar sentido a la vida, aumenta la probabilidad de obtener consecuencias positivas. Por otro lado, como señalan Folkman y Moskowitz (2000), las respuestas de amenaza y reto no son mutuamente excluyentes y pueden ocurrir simultáneamente, como resultado del mismo estresor.

Por tanto, las consecuencias del estrés difieren en función de la evaluación que se realice de los estresores (Fogarty et al., 1999; Boswell, et al., 2004; Cavanaugh et al., 2000). Existen estudios que demuestran que la evaluación de los estresores como amenaza está relacionada con mayores niveles de burnout (Shaufeli y van Rhennen, 2006), mientras que la evaluación positiva puede conllevar un nivel de burnout más bajo (Ben-Zur y Michael, 2007), asimismo, la percepción de reto lleva al compromiso con la tarea (Maier y cols., 2003; Quick, et al., 2003).

¿Existe una proporción óptima en la percepción negativa y positiva del estrés?

La coexistencia de valoraciones tanto negativas como positivas del estrés lleva a plantearse si existe una proporción óptima para la salud psicológica. En esta línea, Fredrickson y Losada (2005) demostraron que existen evidencias de que una alta

proporción de afecto positivo con respecto al negativo distingue a las personas que “florecen” de las que no. Los autores entienden el “floreCIMIENTO” (*flourishing*) como uno de los componentes, junto con el bienestar, de la salud mental (Keyes, 2002). De hecho, el florecimiento implica felicidad, satisfacción, flexibilidad conductual, crecimiento y resiliencia.

Estos estudios abren nuevos e interesantes interrogantes relacionados con esta compleja dinámica. En primer lugar, cabe preguntarse si los resultados encontrados con respecto a las emociones son aplicables a la investigación sobre el estrés. Es decir, ¿existe un punto óptimo en la proporción entre la valoración positiva y negativa de los estresores?

Este planteamiento lleva a dos preguntas fundamentales: ¿existe un grado de percepción de estrés como amenaza que pueda considerarse positivo?; y, a la inversa, ¿existe un grado de percepción de estrés como reto que pueda considerarse negativo?

La primera pregunta está más enraizada en la concepción de la percepción de amenaza como un signo de alerta fundamental para la supervivencia. Así, cierta percepción de amenaza es positiva en la medida en que lleva a tomar medidas para corregir una situación potencialmente perjudicial.

La segunda pregunta se basa en algunos estudios recientes. Hay investigaciones que muestran que la experiencia de la carga de trabajo es una de las causas de la adicción al trabajo (Burke y Koxsal 2002; Kanai y Wakabayashi, 2001). En esta línea, Schaufeli et al., (2009) encontraron que los médicos residentes siguen trabajando demasiadas horas incluso si se sienten enfermos. Los autores señalan algunas de las posibles causas de este comportamiento: la presión del grupo, las excesivas demandas

del superior o incluso la cultura profesional. Esto nos lleva a plantearnos si no perciben una amenaza real para su salud; ¿es posible que perciban la situación como un reto y no como una amenaza?; ¿hasta qué punto podemos hablar de compromiso con el trabajo o de adicción al trabajo?

Si el compromiso con el trabajo surge de la sobrecarga, puede resultar peligroso y llevar a la adicción al trabajo (Frasunkiewicz, 2007). Mientras que el compromiso con el trabajo es un fenómeno positivo, la adicción al trabajo resulta negativa (Schaufeli et al., 2009). Una persona adicta al trabajo tiene una fuerte motivación interna que no es capaz de resistir. Sin embargo, una persona comprometida con su trabajo se siente absorbida y tiene dificultades para desprenderse de él (Bakker, Emmerik, y Euwema, 2006), pero encuentra placer al realizarlo (Kanai y Wakabayashi, 2001; Spence y Robbins, 1992; Schaufeli et al., 2008).

En resumen, es importante estimular el placer en el trabajo, enseñar a los empleados a percibir los estresores de manera más positiva para que encuentren sentido en lo que hacen (Kanai y Wakabayashi, 2001). Pero, asimismo, es importante encontrar un equilibrio de forma que el exceso de “positividad” no lleve a la sobrecarga y a la adicción al trabajo.

El papel de la cultura

El ambiente social es una realidad poderosa. La gente de la misma cultura comparte “reglas de valoración” (Averill, 1986) y formas de tratar con el mundo (Semmer et al., 1992).

La cultura afecta a todos los aspectos implicados en el proceso del estrés laboral (Bliese y Jex, 2002, ver Glazer et al., 2004) y provoca diferencias tanto en las

percepciones como en las consecuencias de los estresores (Chiu y Kosinski, 1995; Glazer y Beehr, 2005).

Por tanto, puede haber diferencias entre los distintos países en el énfasis que se pone en la percepción de amenaza o de reto. Así pues, con el fin de ser capaz de dar una descripción válida del proceso de estrés, entender su esencia y asegurar el conocimiento que ayude a navegar en un contexto cada vez más global, es preciso llevar a cabo investigaciones transculturales (Triandis y Suh, 2002).

En la actualidad, los estudios transculturales sobre el estrés laboral se presentan como una nueva dirección en la investigación (Cooper, 2000; Glazer et al., 2004). Sin embargo, la investigación norteamericana y de Europa occidental domina el área de los estudios sobre el estrés (Gelfand, et al., 2007; Siu, 2003; Xie, 1996). No obstante, el problema del estrés laboral resulta especialmente relevante para los países que experimentan cambios económicos y sociales, como los países de Europa del Este. Las diferencias entre los países orientales y occidentales llevan a plantearse si existen diferencias en la forma de percibir los estresores y si es posible generalizar las teorías y soluciones organizacionales generadas en Occidente. Es posible que distintos países, con distintas situaciones y formas de ver el mundo, tengan distintos niveles de percepción positiva y negativa del estrés y que el nivel óptimo de proporción entre ambos aspectos sea diferente. Con la incorporación de distintos países a la UE, es importante comparar y entender las diferentes culturas para poder contribuir al desarrollo y crecimiento social de Europa.

El futuro en la investigación del estrés

A pesar del auge de la Psicología Positiva, el concepto de estrés positivo aún no está bien desarrollado y algunos autores, como Nelson y Simmons (2003) exhortan a los investigadores a centrar sus esfuerzos en ello.

La inclusión de la perspectiva positiva en el estudio de estrés puede aportar nuevas energías a la investigación y da nuevas esperanzas para crear y mantener lugares de trabajo más positivos y saludables (Nelson y Simmons, 2003). Esto es especialmente importante, no sólo en nuestro país, sino en toda Europa, ya que el estrés es uno de los principales problemas a los que se enfrenta Europa, como señala la Agencia Europea para la Seguridad y Salud en el Trabajo. Por ello, es necesario realizar estudios transculturales que ayuden a entender las peculiaridades de cada país permitiendo abordar mejor dicha problemática.

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Articles:

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Kozusznik M. W, Rodriguez, I., & Carbonell S. (2009). Managing stress at work to increase engagement and diminish burnout. The role of the positive and negative perception of stressful events. *Management*, 13(2), 66-76.

Book chapters:

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