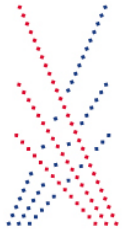

BRITISH ACADEMY
OF MANAGEMENT

BAM
CONFERENCE

3RD-5TH SEPTEMBER
ASTON UNIVERSITY BIRMINGHAM UNITED KINGDOM

This paper is from the BAM2019 Conference Proceedings

About BAM

The British Academy of Management (BAM) is the leading authority on the academic field of management in the UK, supporting and representing the community of scholars and engaging with international peers.

http://www.bam.ac.uk/

Occupational Stress and Organisational Climate: The Role of Climate Revisited

Wordcount = 7236 (without references)

Abstract

Working within the frameworks of foundational approaches on occupational stress, emphasizing the importance of the cognitive appraisal in Stress perception, the extent to which negative health-related outcomes are associated with Strain and shared perceptions of Organizational Climate is explored. In this research, Structural Equation Modeling (SEM) is used to assess the path from strain to stress, with the mediating role of climate. The results are discussed in light of current and historical literature. In particular, the hypothesis that Strain has a direct effect on health outcomes and wellbeing is investigated and confirmed, and the mediating effect of organizational Climate in the strain/stress process. It is therefore demonstrated how climate, or the cognitive appraisal of practices, procedures and policies that are recognized and rewarded in the organization, has to be considered to guarantee the results in terms of organizational effectiveness and employees' wellbeing.

1. Introduction

1.1 Occupational Stress: theoretical background.

The concepts of occupational stress and psychological health have been widely studied. Over the past decades, psychological and medical research has produced hundreds of papers demonstrating the impact of job Stressors on mental health disorders and psychological well-being. Theoretical frameworks have guided the empirical studies.

Stress is a somewhat ambiguous concept, and since its introduction by Selye in the fifties, has been used in many ways.

From a psychological perspective, stress is as an unfavorable person-environment relationship (Lazarus & Folkman, 1984), connected to negative psychological and/or physical health (Murphy and & Schoenborn, 1987; Brown & O'Brien, 1998). It is a multidimensional construct and includes the perception of, or responses to events and environmental factors. Stress is primarily an emotional process, but can affect physical health as well. Prominent current models are based on the widely accepted definition of psychological stress as "A relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1984; p.21).

Stress is the adverse reaction people have to excessive pressure or other types of demands placed upon them (htpp://www.hse. gov.uk/Stress), and it is believed that there is a straightforward relationship between poor work organization and subsequent ill health (D'Amato & Zijlstra, 2010; Schnall, Dobson, Rosskam & Elling, 2018).

Theoretical models presented in the 70s and 80s have been influential in the field.

For the Social Environment Model, the basis for the better-known Person-Environment-Fit model (French, Caplan & Harrison, 1982), stress is the interplay between objective and subjective components of both ill person and the work environment. Two sorts of incongruences are underlined in this model as especially relevant for health:

- experienced incongruence between the person's ability and the demands of the job;
- experienced incongruence between the person's goals and aspirations and the resources offered by the work environment.

The person-environment fit approach has been very useful as a starting point for research assessing the relationship between job characteristics (job Stressors) and mental health outcomes (Burke, 1994; Rahim & Psenicka, 1996; Schulz et al., 1995). During the last couple of decades, two prominent models – Lazarus & Folkman Transactional Model and Karasek's Job Demand/Control/Support – have been used as a basis for empirical research:.

The Stress-Appraisal-Coping Transactional Theory: The Transactional model (Lazarus & Folkman, 1984) describes the person and the environment in a dynamic, mutually reciprocal, bi-directional relationship and identifies a level of abstraction in which the person and the environment are taken together to form a new relational meaning. The central assumption is the individual's cognitive appraisal of the environment. The individual evaluates and appraises each situation and determines whether it has potentially threatening elements. This process then determines the individual's response — e.g., social, somatic health responses or morale – to that situation. Two critical processes mediate the process, such as cognitive appraisal and coping. Cognitive appraisal is the evaluative process that determines why and to what extent a particular transaction or series of transactions between the person and the environment is stressful. Coping is the process through which the individual manages the demands of the person-environment relationship that are appraised as threatening or stressful and the emotions they generate.

The Lazarus Transactional Model adopts a comprehensive approach where Strain is the outcome relating to the person's previous experience, the success/failure in dealing with similar situations and the familiarity with the situation (Coffey, 1999); Singh, Goolsby & Rhoads (1994) similarly argue that burnout occurs when Stressors (job demands) exceed the individual's coping resources. The sources of Stress are interactive with one's personal reactions, and one's response

to Stress in turn affects social functioning, morale and somatic health (Tsai, 1997; D'Amato and Zijlstra, 2010).

Williams et al. (2002) supported the transactional approach. In their empirical investigation, workplace conditions were the major determinants of mental and physical health. Both satisfaction and stress in turn were the moderators between the dependent and the independent variables. According to the theory, Stressors (workplace conditions) are subjected to cognitive processes and the appraisal might result in perceived Stress (mental and physical conditions).

Karasek's Job Demand-Control/Support Model (JIDC/S). Karasek's model postulates that the psychological work environment is characterized by a combination of job demands and job control, and predicts that the greatest adverse reaction (e.g., psychological Strain), occurs when psychological demands are high and a worker's decision latitude (e.g., constraints in decision making or lack of control over the task) is low (Karasek, 1979). In contrast, workers exposed to high levels of demand are more able to cope with the sources of Stress if they perceive that they have a high degree of decision-making latitude and autonomy in the job. Low social support at work further increases the risk of negative health consequences (Johnson & Hall, 1988).

The important interaction claimed in the JDC/S model is that two separate sets of outcomes (Strain and activity level) are jointly predicted by the combination of demand and control (Karasck et al., 1998). The Strain hypothesis of the JDC model is supported when there are two main effects of job demands and job control and/or when there is a multiplicative interaction effect between these two work characteristics. Employees working in environments characterized by high demands and low control experience the highest level of Strain, and the above-mentioned additive or multiplicative interaction effects of demands and control are complemented with a main or interaction effect of social support. Employees working in environments characterized by high

demands, low control and low social support experience the highest level of stress (de Lange et al., 2003). Psychological Strain occurs particularly in Jobs with low decision latitude and low social support.

The popularity of this model is certified by the number of articles emerged over the past couple of decades. Those are based on studies that looked at the strain/stress process (O'Connor et al. 2006; Mausner-Dorsch et al., 2000; Calnan et al., 2001; Sluiter et al., 2001; Häusser, Mojzisch, Niesel, M. and Schulz-Hardt, 2010; Gilbert-Ouimet, Trudel, Brisson, Milot, A. and Vézina, 2014).

Job demands in combination with other Stressors (e.g., practice administration, interruptions, working environment, routine medical work, emotional involvement and work/home interface and social life) predicts to same extend mental ill health (Rout, Cooper, Roui, 1996). In addition, increased levels of job Strain are associated with mental ill health (e.g., Calnan et al, 2001; Tummers et al., 2001) and the contribution of different facets of control and different patterns of relationship between job control, work pressure and measures of Strain has been accounted for (Carayon & ZijIstra, 1999).

However, studies with a similar research design have found contrasting results. Smulders et al. (1998) in their longitudinal study were unable to demonstrate the interaction between job control and job demand to predict ill-health effects, yet Vahtera et al. (2000), again using a longitudinal research framework, found an effect for change in the psychosocial work environment, as predicted by Karasek's model.

In conclusion, Lazarus's transactional model is a worthwhile theoretical framework, but its theoretical basis has been better investigated then the empirical application. Differently Karasek's model is relatively straightforward in its operationalization, but it is in some way limited in

furthering our understanding of the process of developing Strain as a result of stressful situations at work. Thus, they are not mutually exclusive but might compare into a comprehensive framework, the former focusing on the process, the latter role-based. Furthermore, the coping process theoretically defined in Lazarus, are not explicitly addressed in Karasek's, although the decision latitude could be the proxy.

This means that the organizational practices, procedures and policies should be taken into account and their impact controlled. In fact, these factors, summarized as Organizational Climate factors in some literature (cf. Schneider and Reichers, 1983; D'Amato and Zijlstra, 2008) could be the "collective" coping strategies for their nature of shared appraisals.

As the cognitive appraisal is the critical process to define the situation as stressful, it makes sense to assume that Organizational Climate is the intervening variable or the coping element in the complex organizational life.

1.2 Organizational Climate

Organizational Climate has a long history in organizational science research (Argyris, 1957; McGregor, 1960; Forehand & Von Haller, 1964; Litwin & Stringer, 1968; Schneider, Reichers, 1983; Joyce & Slocum, 1984; Quaglino, 1987; Schneider, 1990; Moran & Volkwein, 1992; Denison, 1996; Dickson, Smith, Grojean & Ehrhart, 2001; D'Amato and Majer, 2001; D'Amato and Zijlstra, 2008; Burke and D'Amato, 2008).

As organizational psychology developed as a distinct sub-discipline in the 1950s, Organizational Climate emerged as a central construct for understanding organizational effectiveness (Kozlowski & Klein, 2000). Early studies of Organizational Climate defined it as a relatively enduring quality of an organization (Pritchard & Karasick, 1973). Early studies into

Organizational Climate began with an individual-level approach; later studies devoted their attention almost exclusively to the construct, as it may be understood within the domain of organizational-level variables. Subsequently, climate is conventionally defined as a system formed and transformed in the reciprocal exchange in the organization (Bastien, McPhee & Bolton, 1995). This compares into a general description members share but may experience and interpret in very different ways, resulting in surface climates quite different across operating units, departments or even locations of the same company.

Climate is the organizational members' shared perceptions of the policies, practices and procedures that are rewarded, supported and. expected (Reichers & Schneider, 1990; D'Amato and Zijlstra, 2008; Schneider et al., 2002), subject to contextual and social influences (James, James & Ashe, 1990; Schneider, 1983; Bastien, McPhee & Bolton, 1995).

After the pioneering attempt to figure out a comprehensive model of Climate, recent research has shifted to the *Climate for something*. These are the organizational priorities/practices for specific results in terms of, for example, customer satisfaction (Schneider & Bowen, 1995; Schneider et al., 1998), safe behavior at work (Zohar, 2002), harassment (Fitzgerald et al., 1997), successful implementation of new technologies (Klein et al., 2001) or organizational changes (Bear & Frese, 2002; Fay et al., 2004).

By contrast, the relationship between Climate and psychological or physical wellbeing has been neglected, but for a few studies that demonstrate how good mental health is linked with having sufficient resources but also good management practices and a high level of autonomy (Graham, et al., 1996; D'Amato and Zijlstra, 2010), factors partially representing Climate.

The JDC/S assumes that the social environment generates behavior, and this is one of the climate factors. Emotional response is then the dependent variable derived from work-related behavioral requirements (Karasek et al., 1998).

Theoretical as well as empirical relationships between a comprehensive Climate measurement and the outcomes have been widely underspecified despite knowing that it is very likely that Climate factors as a whole have a substantial impact on individual's health and wellbeing. Thus there is the need to extend the research of the linkage model of Strain/Stress and Climate that is built on restricted models of Climate. The standpoint for this research is that the variance of the Stress manifestations can only be understood when a comprehensive group of organizational priorities are taken into account (i.e., what is largely understood as climate).

In other words, the deviance in individual outcomes can only be understood when the cognitive appraisal of the working conditions is assessed. Participating in an organization has a socializing effect, which means that people eventually create a common perception of practices and procedures. Employee's health and wellbeing could be affected by either internal or individual evaluation and external or shared evaluation of the working environment. If this were the case, models considering only a limited number of organizational variables would only explain a limited amount of the variance of wellbeing and health.

1.3 Stress in teaching profession: from a specific to a general model

Of particular interest to the study of organizational characteristics and the relation with stress, is the teaching profession. The last few decades have produced impressive modifications in Europe in the local school systems and reforms have changed the nature as well as the organization of the role of teachers. International research has long recognized the demanding nature of the

teaching profession and has widely addressed the problem of teachers' occupational stress and research has developed based on profession-specific perspectives and models.

Teaching is a demanding profession (Travers & Cooper, 1993a; 1993b; Griffith, Steptoe & Cropley, 1999; Taris, Schreurs & Van Iersel, 2002) and evidence is available on the characteristics of the job and its influence on both psychological (Burke et al., 1996; Van Horn, Schaufeli, & Enzmann, 1999; Travers & Cooper, 1993b; Cooper & Kelly, 1993) and physical wellbeing (Burke et al., 1996). In addition, the changing nature and organization of the teacher's role in several European countries is accountable for the stressful conditions related to the teaching professions (Pascual et al., 2003; Pisanti et al., 2003).

A model that was developed to detect teachers' stress is Fimian's model, and has been operationalised in a questionnaire, the Teacher Stress Inventory (TSI; Fimian, 1984; 1986; 1989; Favretto, 1994). The TSI is measuring the frequency and strength of teachers' occupational stress and is organized in six main factors: (a) Personal/professional Stressors, (b) Professional distress, (c) Discipline and motivation; (d) Emotional manifestations; (e) Bio-behavioural Manifestations and (f) Physiological-Fatigue manifestations. These factors were later suggested as belonging to two categories: sources of stress and manifestations of Stress (Fimian, 1986). The empirical analysis have demonstrated only the consistency of the factors, no attempt has been made to demonstrate a causal relationship between the two categories.

Fimian's factors, as they are reported, can be considered as a good descriptive model but the underlying process is not taken into account and Stressors and results are not differentiated in their emergence. The causal path from stressors to stress, widely demonstrated in the general literature, to the best of our knowledge has never been demonstrated.

In the last couple of decades, the literature on occupational Stress has proceeded from the research of models occupation-specific towards cross-occupation models of stress. Although Fimian's model is profession-specific, a first look at the content suggests that it might be translated into a general one. In fact, the content of the items addressing stress sources are largely in line with the Job Demand-Control/Support model, and the mental-ill health predicted by the Job Demand-Control/Support model is easily recognized in Fimian's second category, or the stress manifestations.

It therefore makes sense to empirically test Fimian's model within an approach that can provide an explanation of how the demands of the job lead to long-term consequences, in terms of individually perceived health and wellbeing.

1.4 Research hypotheses.

Drawing upon the earlier discussion, the first aim of this paper is to test an original model of Strain/Stress relationships, using the operationalization of Stress proposed by Fimian (1984). The central idea is that it can be demonstrated that there are two separate groups of factors: sources of Stress and manifestations of Stress. Thus:

Hl: Fimian's original model of six factors of Stress consists of two-domains, one including Stressors (Strain) and the other health-related outcomes (Stress).

According to Karasek's theoretical framework, the results in terms of mental ill- health are predicted by the interaction betweey job demand, job control and lack of organizational support, the three basic general Stressors. High level of demand in combination with perceptions of a low level of decision latitude (control over the job) and lack of organizational support, lead

to high level of Stress (de Lange et al., 2003). Thus, the process has a multiplicative interaction effect.

In the same way, Fimian's two categories should be understood as a two-stage process where the Stressors, in their combination, directly define individual wellbeing — psychosomatic health complaints and emotional manifestations. If the two categories are confirmed, the causal path from Strain to Stress should be also confirmed in the TSI:

H2: The specification of strain has a direct effect of stress in Fimian's model.

According to Lazarus's theoretical framework and previous research on workplace conditions (Williams et al., 2002) organizational practices, procedures and policies have a direct influence on Stress manifestations. The cognitive appraisal of the organizational environment — the objective components which are shared within the organization or the relevant organizational unit/group (James, James & Ashe, 1990) — has a direct influence on both emotional and behavioral manifestations. Arguably, a comprehensive model of Climate can explain part of the variance in Stress manifestations or strain.

In the Person-Environment Fit model (French et al., 1982) the outcomes in terms of strain, derive from the interaction between objective and subjective components recognizing two incongruences.

Karasek's factors — demand, control and support — can be understood in terms of incongruence between the person's ability and resources and the demands of the job. A person's goals and aspirations determines how much a person is willing to invest in the job and when jobs and aspirations are threatened by, for example, a perceived negative or conflictual work environment this will have a negative effect on individual's health and wellbeing.

Lazarus' transactional model describes the person and the environment in a dynamic, mutually reciprocal, bi-directional relationship taking the person and the environment together to form a new relational meaning. A different position could claim that the shared appraisal of the work environment (Organisational Climate) is the mediator between the individual's cognitive appraisal of the demands of the job (Stress) and the outcomes in terms of individual health and wellbeing (Strain).

Strain as a combination of input factors — e.g., organizational demands — has a direct influence on perceived stress, but the shared perceptions of the work environment partially mediate the relationship. In such a model, Climate can be conceptualised as "coping" strategy through which the situation is appraised as taxing or threatening or not. The process is depicted in fig. 1, where organizational Climate is the partial mediator between stress and strain.

[INSERT FIG. 1 ABOUT HERE]

Thus our third hypothesis is that organizational climate partially mediates the stress/strain relationship. Or:

H3: Climate partially mediates the development of strain into stress.

This means that the hypothesis that Strain has a direct effect on health outcomes and wellbeing is explored first; next, the mediating effect of organizational Climate in the process is analyzed. It is finally argued that the Climate's factors, or the cognitive appraisal of practices, procedures and policies that are recognized and rewarded in the organization, have to be considered to guarantee the results in terms of organizational effectiveness and employees' wellbeing.

2 Method

2.1 Procedure and Participants/Sample

Teachers from three different schools within the same district in the North of Italy took part in this research. Information about the study was shared with them before the school monthly staff meeting, and participation invited from the headmasters. This was meant to monitor staff attitudes to the work organization. The anonymity and confidentiality of the responses was guaranteed. 263 questionnaire were completed. Three questionnaire were excluded from data analysis due to missing values, and 260 questionnaires were deemed as valid.

The teachers shared the same job title and reported to one of the three headmasters. 25.4% had job tenure between 1 and 7 years, 17.7 between 8 and 14 years and 55.7% over 14 years. 76.8% were employed on a permanent contract and 23.2% were employed on a temporary contract. 98% of the population were female.

2.2 Measures

Fimian's Teacher Stress Inventory (TSI; 1984; 1986) was used to measure Strain and Stress. The 38 items of the questionnaire investigate six factors: Personal/professional Stressors, Professional Distress, Discipline and Motivation, Emotional Manifestations, Bio-behavioral Manifestations and Physiological-Fatigue Manifestations.

For the six scales, the Cronbach's alpha was higher than .73 in several validation samples (Fimian, 1984). Respondents answered using a 4-point scale (1=never; 4=quite frequently).

Organisational Climate was assessed in this research using the M_DOQ10, a comprehensive 10-factor questionnaire identifying the following variables: Communication, Autonomy, Team, Development, Job Description, Job Involvement, Rewards, Supervision, Innovation and Dinamism. The decision to use this measure was based on a general consensus

which has been reached in Italy concerning this operational model of climate (cf. Majer & D'Amato, 2001; D'Amato & Majer, 2005; Majer, Marcato, D' Amato, 2002; Depolo et al., 2003; Marocci and Majer, 2002) and the multi- faceted nature of Climate as organizational priorities. The validity of the M_DOQ10 has been extensively demonstrated (Majer and D'Amato, 2005). Cronbach's alpha' scores for the scales are respectively: .89; .80; .90; .80; .73; .74; .73; .82; .69; .71. Applied research has corroborated the ten factors as relevant for two referent: the mission of the organization and the employees, similarly as in the 2-stakeholders perspective (Burke, Borucki, Hurley, 1992; Burke, Borucki, Kaufman, 2002). The two stakeholders predict respectively 5 and 6 variables. Corcern/Climate for the Organizational mission (CforO) is the predictor of Supervision, Communication, Reward, Dynamism, and Job Involvement; Concern/Climate for Employees (CforE) of Innovativeness, Fairness, Job Involvement, Team, Job description, and Autonomy. Job involvement is predicted by both CforO and CforE; this implies a complex structure in contrast to a simple one. Respondents answered using a 5-point scale ranging from 1 (= absolutely false) to 5 (= absolutely true).

2.3 Analyses

Data analysis was performed with Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) with LISREL 8.51 (Joreskog & Sorbom, 1993). This method of data analysis allows for a complete and simultaneous test of the specific hypothesis including the complex relationships between the exogenous and endogenous variables in a single domain. In particular, SEM allows for the objective evaluation of the adequacy of fit of the theoretical model as well as considerable potential for theory development and construct validation (Raykov, Tomer & Nesselroade, 1991). Path coefficients, variances and co-variances are estimated to create an

estimated population covariance matrix. If the model is specified correctly, the parameter estimates will produce an estimated matrix close to the sample covariance matrix (Ullman, 2001). A chi-square ($\chi 2$) test statistic is used as a measure of goodness of fit of the data to the model. Although the $\chi 2$ distribution measures the discrepancy between S and Σ, this Statistic may not be sufficient to evaluate model adequacy because a significant $\chi 2$ value might reflect of a model mis-specification, power of the test but also a violation of some technical assumptions (Hu & Bentler, 1995). A number of alternative fit index have been developed that are less sensitive to sample size and are reported in this study. Thus, model fit is assessed through a combination of other relevant indices: the Root Mean Square of Approximation (RMSEA), three absolute fit indices (the goodness-of-fit index [GFT], the adjusted goodness-of-fit index [AGFI] and the Critical N index [CN]) and two comparative fit indices (type-2 and type-4, one for each subcategory, the Non-Normed Fit Index [NNEP] and Bentler's comparative Fit Index [CFI]). According to more traditional research, values of .06 or less for the RMSEA, .08 or less for the RMR, .08 or less for the SRMR (Hu, Bentler, 1995), .90 or better for the GFT, .90 or better for the NNFI, .96 or better for the CFI (Ullman, 2001) and >200 for CN signify acceptable fit.

3. Results and Discussion

3.1 Strain and Stress in teaching occupation: components

To test the original TSI, a first CFA was performed assuming six factors explaining the variance of the 38 items to test a 6-factor model of Stress'. The question was: does a 6-factor model with simple structure (e.g., each variable loading only on one factor) fit the data?

The underlying methodological question was: does the model produce an estimated population covariance matrix that is consistent with the sample (observed) covariance matrix? In

the model tested in fig. 2, Stress is the latent exogenous variable. This variable does not receive a directional influence from any other variable in the system and exerts directional influence on six endogenous latent variables, the six factors. Each of the six factors receive a directional influence from stress and predict a number of items (observed variables). No direct relationship between the six factors is indicated in the model because they are supposed to share a common variance through the latent factor Stress. Directional relationships represent hypothesized linear directional influences at one variable on another. The numerical values associated with directional effects are values of regression coefficients, or in other words weights applied to variables in linear regression equations. For each indicator the error term is also represented and it is the part of the indicator not accounted for by the common factor. It has been defined as a Latent variable that exert a linear influence on the variable with whom is associated (MacCallum, 1995),

Expressed in formal terms, the a priori hypothesizes are that: (a) responses to the TSI could be explained by 6 first-order factors and 1 second-order factor of Stress; (b) each item would have a nonzero loading on the first-order factors it was designed to measure and zero loadings on the other five first-order factors; (c) error terms associated with each item would be uncorrelated and (d) co-variation among the 6 factors would be explained fully by their regression onto the second-order factors.

[INSERT FIG. 2 ABOUT HERE]

[INSERT TABLE 1 ABOUT HERE]

Indices reported in table 1 show that the model does not fit the data and the model testing a 6-factor model collapsing in one dimension of Stress can be rejected. Thus, taking into account both the empirical results of the CFA and theoretical concerns, while the variables are evidently

very interesting and meaningful for the understanding of occupational Stress in teachers, it is doubtful that they can be considered as six factors.

From the theoretical perspective, such a framework lacks directionality and abstraction; from an empirical perspective, it is inconsistent with the data. From the literature that Stress is neither a single source nor a single symptom issue (Fimian, 1987) and the six factors have been proposed by the author himself as belonging to two groups, the former source of Stress and the latter manifestation of Stress (Fimian, 1986). The, content of the items and a better understanding of the meaning of the perceptions assessed, shows that the former group has a strong resemblance with Karasek's JDC/S model while the latter group can be seen as health-related outcomes or Stress manifestations. Fimian's model also presents some operational issues. The numbers of items representing each factor do not seem to apply to the widely accepted parsimony requirement and some clusters of items are redundant. Most importantly, the content of some items suggest that they might capture the core meaning of a different factor. Therefore, a concurrent model has been tested as proposed in hypothesis 1 (H1) and a final model of 15 items for Strain, collapsing in three factors (fig. 3), and 11 items for Stress, collapsing in two factors (fig. 5), has been confirmed. Fit indices are summarized in table 2 and 3.

Expressed in formal terms, the a priori hypothesis is that: (a) sources of Strain can be summarized in 3 first-order latent factors; (b) each item has a nonzero loading on the first-order factors it was designed to measure and zero loadings on the other two first- order factors; (c) error terms associated with each 'item are uncorrelated; (d) there are non-directional relationships among the 3 first-order factors.

The model of interest, through the theoretical question about the correspondence between the population and observed covariance matrix, test two practical questions: does a three factor model

with simple structure (each variable loading only on one factor) fit the data? (2) is there a significant covariance between factors? The program converged so the covariance matrix was assumed to be nonsingular.

[FIG. 3 ABOUT HERE]

[TABLE 2 ABOUT HERE]

With the model re-specified, it fits the data and presents an improvement in fit when compared to a null model where all the observed variables are assumed to be uncorrelated. The smallest standardized residual is -3.30 and the largest 3.56. Factor 1, called Demand for the correspondence of its content to the Demand factor of JDC/S, cover the content of Personal/Professional Stressors and consist of 5 of the 6 original items. As for the items of Professional Distress, the core is indeed a representation of JDC/S's model Control, but some of the original 9 variables have been a priori removed because they were not conceptually relevant Item 6 (Authority rejected by the students) has heen included in Control, because it effectively tap issues relating to control over own's job or role. Item 35 (Attitudes and opinion remain unheard) for its content and the fact that listening and taking into account attitudes and opinions in the school system refers to the relationship with peers or management — support received from the organization as a whole —is represented by the third Strain-factor called Organizational Support. Most items previously describing Discipline & Motivation converge in this factor.

As for Stress, the evaluative response to Strain is viewed as having three aspects: physical, affective/emotional and behavioral (cfr. Patterson et al., 2004). Since the boundaries between physical and behavioral Stress' responses are not defined, a 2-factor model of Stress outcomes is tested: emotional responses and cognitive responses, the second including both behavioral and physical responses.

The two questions of interest are: (1) Does a 2 factor mogel with simple structure (each variable loading only on one factor) fit the data? (2) Are they significantly predicted by a common latent exogenous variable?

In the model presented in fig. 5 the latent exogenous construct of Stress predicts the two endogenous latent variables emotional manifestations and cognitive (physical/ behavioural) manifestations. The two latent factors predict respectively 6 and 5 measured variables.

Expressed in formal terms, the CFA hypothesises a priori are that: (a) responses to Stress could be explained by 2 first-order factors and one second-order factor of Stress; (b) each item would have a nonzero loading on the first-order factors it was designed to measure and zero loading on the other five first-order factors; (c) error terms associated with each item would be uncorrelated and (d) co-variation among the two first-order factors would be explained fully by their regression onto a second-order factor.

[FIG. 5 ABOUT HERE]

[TABLE 3 ABOUT HERE]

As in the previous model of Strain, some error terms are correlated. Nevertheless, fit indices show that the model fits the data and the a priori model presents an improvement in fit when compared to a null model where all the observed variables are uncorrelated.

To conclude, the hypothesis that the model fits the data and Stress cause two sorts of manifestations, emotional and cognitive, can not be rejected. Nevertheless the correlations between error terms suggest that these two factors could be not enough.

Cohen & Wills (1985) have demonstrated along their influential literature review that there is a considerable correlation between psychological and physical symptomatology measures of stress. This can explain the number of relationships between error terms in the model and therefore

justify its acceptance from the theoretical point of view. The content of the 'manifestations of Stress' might be represented as two factors, namely "well-being" and "health", since the former explains the emotional side of the experience of Stress in the occupation whereas the latter the physical manifestations and behavior that together can be named as the cognitive side.

3.2 Strain and Stress: causal relationship

Do Demand, Control and Support act as stressors and cause of Stress, manifested in form of emotional and cognitive manifestations, as measured by the TSI? In Fig. 6 the process model is displayed, and the pattern articulated in H2 tested. In the a priori model the latent exogenous variable Strain exerts directional influence on three measured variables - Demand, Control, Support — as well as on the latent endogenous variable Stress. Stress receives a directional influence from Strain and predict emotional and cognitive manifestations (observed variables). No direct relationship between the outcomes is indicated in the model because they are supposed to share a common variance through the latent factor Stress.

[FIG. 6 ABOUT HERE]

[TABLE 4 ABOUT HERE]

Expressed in formal terms, the a priori model hypothesises that (a) sources of Strain could be explained by 1 first-order factor, as well as Stress manifestations; (b) each observed variable would have a nonzero loading on the first-order factors it was designed to measure and zero loadings on the other first-order factors; (c) error terms associated with each item would be uncorrelated, apart from Demand and Control, and (d) part of the variance in the latent endogenous factor would be explained by its regression onto the exogenous latent factor.

The empirical covariance matrix is consistent to the population covariance matrix when they are compared. The discrepancy of fit per degree of freedom in the model is over the threshold of acceptance (< .060). Nevertheless, the a priori model presents an improvement in fit when compared 16 a null model where all the observed variables are uncorrelated (NNFI = .98; CFI = .99). Also .99 of the variances in S are accounted for by the implied model, .95 when the penalty function for the inclusion of additional parameters is incorporated. The Critical N is 488.27. No sizeable standardized residuals between the observed variables are indi¢ate. The median is 0.00 and they are symmetrically distributed. Although the (Stress> Strain) causal chain is consistent with the literature and in this present study some indices do not suggest the rejection of the model, it still does not seem to explain the complex organizational situation.

3.3 Occupational Stress and the mediator role of Organisational Climate

Our study posits that the complexity of the organizational situation can be better understood only when the effect of Organizational Climate is also taken into account, as a potential coping factor or better an intervening factor between the Stressors perceived from the work characteristics and the resulting health and wellbeing of the individual employee.

The consistency of the Climate construct as tested by the MDOQ10 for the data collected in the schools has been first checked through CFA and a 2-stakeholder's model (Burke et al., 1992; Burke et al., 2002) has been confirmed, the former component having the mission of the organization as a referent and the latter the employee.

The three constructs — Strain, Stress, Climate — have been tested in a complex model having the physiognomy illustrated in fig. 1 and described in hypothesis 3: Climate partially mediates the development of Strain in Stress.

The three conditions for the mediation are: (a) to assume the mediating role of Climate the dependent variable is correlated to the independent variable in the absence of the mediator. The path has been tested in H2. The second condition (b) is that the independent variable is significantly correlated to the mediator. The correlations between the components of strain and climate are detailed in table 5.

[TABLE 5 ABOUT HERE]

All the correlations are significant and in the expected direction, but Innovativeness and the construct of Strain as a whole and Job Involvement and Demand. The Climate constructs as a whole — CforO and CforE — are significantly correlated to Strain.

The final condition (c) for mediation is that, when both the independent variable and the mediator are included, the direct relationships should become significantly smaller indicating partial mediation, or not-significant, indicating full mediation (Masterson, Lewis & Taylor, 2006). This test was performed with SEM. First the test of an a priori model where CforO is the mediator is presented (fig. 7), and then the mediation of CforE is tested (fig. 8).

[Fig. 8 about here]

[TABLE 7 about here]

Strain is the latent exogenous variable that exerts directional influence on the observed variables — Demand, Control, and Support ~ and two endogenous latent factors: CforO/CforE and Stress. The latent endogenous factors receive a directional influence from Strain and exert a directional influence on, respectively, Climate variables and Stress outcomes (emotional and physio-behavioral manifestations). In addition, Stress receives a directional influence from Climate.

Overall, the empirical covariance matrix is consistent with the population covariance matrix when compared. The discrepancy of fit per degree of freedom is.058, acceptable (Hu & Bentler, 1995). The a priori models present an improvement of fit when compared to a null model where all the observed variables are uncorrelated. In the a priori model testing CforO as the mediator, .95 of the variances in S are accounted for by the implied model, .91 when the penalty function for the inclusion of additional parameters is incorporated. In the a priori models testing CforE as mediator, the GFI is €qual to .94 which is not the critical threshold (.95) but the AGFI equal to .91 is aventhatens acceptable. The critical N is unacceptable in the second model. The increment in the regression weights (cfr. Fig.6, 7 & 8) demonstrates that Climate, when made explicit in the model specification, absorbs part of the relationship between Strain and Stress. Thus the results suggest that it is reasonable to refer to a buffering effect of Climate (Cohen, Wills, 1985). The results show that when Climate is taken into account both in the form of Climate for the Organization and Climate for the Employee, the relationship between Strain and Stress increases. When perceptions of Strain increase, Climate — and perceptions of Stress also increase. Although the models are not without criticism, based on these results they cannot be rejected.

Strain has an inverse relationship with the latent factors Climate for Organisation and Climate for Employees (regression weights -0.50 and -0.53 respectively) and the latent factor Stress (regression weights 0.88 and 0.87 respectively). When the effect of Strain on Climate is considered, the latent factors Climate for Organisations and Climate for Employees predict the second order factor Stress explaining 0.28 and 0.22 of the total variance. This means that when Strain increases, the appraisal of Climate decreases and the levels of perceived Stress, reported by the employees, increases.

3.4. Conclusion

Schools are a good example of public organizations faced with multiple and often competing goals (Theobald & Nicholson-Crotty, 2004). The teaching profession, as a 'helping profession' is a complex system where workers experience high levels of stress especially when they perceive that their working environment cannot meet multiple demands. This research represents one of the first studies in Italy where heads of schools displayed genuine interest in understanding their teacher's attitudes and perceptions towards their working environment as well as concern for their employees health related problems. As such, is reledvant and innovative. This present research was inspired by the results of earlier correlational studies, which found Climate as a correlate of wellbeing. The aim of this study was, firstly, to validate a causal model of Stress as described in the TSI with a sample of teachers, living and working in Italy, by accounting for its validity in a complex theoretical structure. Secondly, to assess this model using a wider range of organizational constructs.

In Karasek's the process from Strain to Stress does have a declared organizational basis but it focuses mainly on the individual/employee; the stressors are the risk factors but the reaction to these stressors lies firmly with an individual's appraisal of the situation. At the opposite Climate is an organizational-level variable because the shared appraisal is built into the organization with a social constructivist (Blumer, 1969) or structurational (Poole, McPhee 1983) approach.

There is a plethora of empirical research studies on Climate, which has focused on understanding the correct level of analysis for this variable (see James, Demaree & Wolf 1993; Lindell & Brandt, 2002; Klein & Kozlowski, 2000). Glick (1985) differentiated between the psychological and Organizational Climate taking into account the individual or the group shared perceptions. James and Ashe (1990) highlight the individual phenomenological experience of

Climate but argue that team agreement is a confirmation of an objective reality. Chan's composition model (1998) is perhaps the most influential and structured framework used to understand the correct level of analysis for Climate.

Similarly, much effort has gone into identifying the correct level of analysis for Stress (cfr. Bliese & Jex, 2002). Based on the results of past research this research combined the traditional directional relationship between Strain and Stress. The path from Strain to Stress describes individual work characteristics leading to individual outcomes and the partial mediation of a third variable, such as organizational Climate, have been tested.

Lazarus & Folkman (1984) emphasized the role of cognitive and emotional elaboration on Stress perception as well as the interaction between individual resources, needs and the demands of the environment. The transactional model of Stress emphasizes the cognitive appraisal involved in the level of Stress experienced i.e. the extent to which negative health-related outcomes are associated with shared perceptions of Organizational Climate. This is tested in this present research in a causal model.

In keeping with the social interactionist hypothesis, this study has shown that Climate consistently acts as .a buffer between Stress and Strain. Climate acts as an organizational mediating variable between individual variables (Smith-Crowe, Burke, Landis, 2003). Depending on how the Climate is perceived and appraised it can be considered as a threat, challenge or a defense. According to Lazarus & Folkman (1984) a threat is the key intervening variable in psychological stress. Perceived poor working conditions i.e. high demand, low control, low support in organizations where Climate is negatively appraised leads to high levels of Stress. Whereas a Climate rated positively in a high Strain working conditions acts as a protective shield from the negative effects, both emotionally and cognitively, of Stress.

The research hypothesis is supported that a Climate rated highly can be considered as a 'coping' strategy or indeed as having a buffering effect for Stress or Strain in the workplace. This implies that organizations should address Climate issues within the workplace to combat perceived high levels of Strain and Stress. A positive Climate can be a protective factor from risk of Stress; the lower the Strain, the lower feelings of Stress arise because of organizational policies, practices and procedures.

Variance of Stress can be partially explained by Organizational Climate but based on the results presented here it seems reasonable to broaden Lazarus' concept of Stress from a person based cognitive elaboration to an organizational based elaboration, shared with an organizational context affecting individual reactions.

Furthermore the results of this research provides support for the argument that despite criticism leveled at studies which focus solely on the traditional Climate construct (Schneider, 2001), general Climate measures do offer a unique insight into the relationship between work characteristics and individual outcomes. Although the Organizational Climate construct might be abstract, the experience of Stress is indeed a reality for employees. Thus, organizational characteristics mediate and affect individual mental health (Stansfeld et al., 1999).

As for the method, as a general rule when using Structural a Equation Modeling a priori models have beet first specified in consideration of the nature of the relationships between the variables. Considering that "*mathematically* viable models are less logically viable than others, and researchers need to take advantage of logical as well as mathematical and theoretical information in assessing viability of models and competing models" (Maruyama, 1998, p.11), the a priori model specification has been fulfilled though an in-depth understanding of the topic of interest and the literature. However, as the study is reasonably new, and in some way exploratory,

future research replicating this study using a different sample will confirm or not the findings of this present research. Research in the future could consider changes to the methodology. For example, the sample in this study was not large enough, as proposed with SEM, to split randomly in two, one group to be used to test the model and one to confirm the results. It would also be useful to assess the model comparing subjects with low and high level of Strain.

References

Argyris, C. (1957). Personality and organization: the conflict between system and the individual. New York: Harpers.

Bastien, D.T., & McPhee, R.D., & Bolton, K.A. (1995). A study and extended theory of the structuration of Climate. Communication monographs, 62(2): 87-109.

Bear, M., & Frese M. (2002). Innovation is not enough: climates for initiative and psychological safety, process innovations, and firm performance. Journal of Organizational Behaviour, 24, 45-68.

Bliese, P.D., & Jex, S.M. (2002). Incorporating a Multilevel Perspective Into Occupational Stress Research: Theoretical, Methodological, 'and Practical Implications. Journal of Organizational Health Psychology, 7(3), 265-276.

Blumer, H. (1969). Symbolic Interactionism: Perspective and Method. Englewood Cliffs, NJ: Prentice-Hall.

Brown, C., & O'Brien, K.M. (1998). Understanding Stress and burnout in shelter workers. Professional Psychology: Research and Practice. 29(4): 383-385.

Burke, M.J., Borucki C.C., & Kaufman, J.D. (2002). Contemporary perspectives on the study of psychological Climate: A commentary, European Journal of Work and Organizational Psychology, 11(3), 325-340.

Burke, M.J., Borucki, C.C., & Hurley, A-E. (1992). Reconceptualizing psychological Climate in a retail service environment: A multiplé-stakeholder perspective. Journal of Applied Psychology. 77(5): 717-729."

Burke, M.J., Rupinski, M.T., Dunlap, W.P., & Davidson, K. (1996). Do situational variables act as a substantive causes of relationships between individual difference variables ? two large-scale tests of "common cause' models. Personnel Psychology, 49, 573-598.

Burke, R.J., (1994). Stressful events, work-family conflict, coping, psychological burnout, , and well-being among police officers. Psychological Reports. 75(2): 787-800.

Calnan, M., Wainwright, D., Forsythe, M., Wall, B., & Almond, S. (2001). Mental health and Stress in the workplace: the case of general practice in the UK. Social Science and Medicine. 52(4): 499-507.

Carayon, P., & Zijlstra, F., (1999). Relationship between job control, work pressure and Strain: studies in USA and in The Netherlands. Work & Stress, Vol. 13(1): 32-48.

Chan, D. (1998). Functional relations among constructs in the same content domain at Different Levels of Analysis: A typology of Composition Models. Journal of Applied Psychology, 83(2), 234-246.

Coffey, M., (1999). Stress and Burnout in forensic community mental health nurses: an

investigation of its causes and effects. Journal of Psychiatric and Mental Health Nursing. 6: 433-443,

Cohen, S., & Wills, T.A. (1985). Stress, Social Support, and, i Abe Buifering Hypothesis. Paychological Bulletin. 98(2):310-357.

Cooper, C.L., & Kelly, M. (1993). Occupational Stress in head teachers: A national UK study. British Journal of Educational Psychology. 63(1): 130-143.

Corbetta, P. (1992). Metodi di analisi multivariata per le scienze sociali. Bologna: Tl Mulino, Bologna.

D'Amato, A., & Burke, M. J. (2008). Psychological and organizational climate research: Contrasting perspectives and research traditions.

D'Amato, A., Majer V. (2001). Il Clima Organizzativo: approcci teorici e prospettive di ricerca. Risorsa Uomo, 8, 267-292.

D'Amato, A., Majer V. (2004). L'M DOQ1O, il questionario multi-fattoriale per la diagnosi del clima organizzativo.

D'Amato, A., & Zijlstra, F. R. (2008). Psychological climate and individual factors as antecedents of work outcomes. *European Journal of work and organizational psychology*, *17*(1), 33-54.

D'Amato, A. and Zijlstra, F., 2010. Toward a climate for work resumption: the nonmedical determinants of return to work. *Journal of occupational and environmental medicine*, *52*(1), pp.67-80.

de Lange, A.H., Taris, T.W., Kompier M.A.J., Houtman, I.L.D., & Bongers, P.M. (2003). "The Very Best of the Millennium": Longitudinal Research and the Demand-Control- (Support) Model. Journal of Occupational Health Psychology, 8(4): 282-305.

Denison, D.R. (1996). What is the differefiice between organizational culture and Organizational Climate? A native's poifit of view on a decade of paradigm wars. Academy of Management Review, 21, 619-654.

Depolo, M., Guglielmi, D., Sarchielli, G., & Toderi S. (2003). Diversity in Psychological Contracts: Implications for Employee Attitudes in Organizations. In Avallone F., Sinangil H.K., Caetano A. (eds.) Identity and Diversity in Organizations. Quaderni di Psicologia del Lavoro, 11.

Dickson, M.W, Smith D.B., Grojean M.W., & Ebrhart M. (2001). An Organizational Climate regarding ethics: The outcome of leader values and the practices that reflect them. Leadership Quarterly. 12(2), 197-217 #

??

Favretto, G. (1994). Lo Stress nelle organizzazioni. Bologna: Il Mulino. Me

Fay, D., Luhrmann, H., & Kohl, C. (2004). Proactive climate in a post-reorganization setting: When staff compensate managers' weakness. European Journal of Work and Organizational Psychology. 13, 241-258.

- Fife-Shaw, C. (2004). Basic introduction to Structual Equation Modeling (SEM) and Lisrel8 for Windows. Course handout, University of Surrey.

Fimian, M.J. (1984). The development of an instrument to measure occupational Stress in teachers: The teacher Stress Inventory. Journal of Occupational Psychology, 57, 277- 293.

Fimian, M.J. (1986). Note on Reliability of the Teacher Stress Inventory. Psychological Reports, 69, 275-278.

Fimian, M.J., Fastenau, P.A., Tashner, J.H., & Cross, A.H. (1989). The measure of classroom = and burnout among gifted and talented students. Psychology in the Schools, 26, 139-153. 5

45

Fitzgerald, L.F., Drasgow, F., Hulin, CL., Gelfand, M.J.,%& Magely, VJ. (1997). Antecedents and Consequences of Sexual Harassment in Organizations: A test of an Integrated Model. Journal of Applied Psychology, 82(4): 578-589.

Forehand, G.A., & Von Haller G. (1964). Environmental variation in studies of organizational behavior. Psychological Bulletin, 62(6), 361-382.

French, J.R:, Caplan R.D., & Harrison R.V. (1982). The mechanisms of job Stress and Strain. Chichester, England: Wiley.

Gilbert-Ouimet, M., Trudel, X., Brisson, C., Milot, A. and Vézina, M., (2014). Adverse effects of psychosocial work factors on blood pressure: systematic review of studies on demand-control-support and effort-reward imbalance models. *Scandinavian journal of work, environment & health*, pp.109-132.

Glick, W.H. (1985). Conceptualizing and measuring organizational and psychological Climate: Pitfalls in multilevel research. Academy of Management Review. 10(3): 601- 616.

Graham, J., Ramirez, A.J., Cull, A., Finlay, I., Hoy, A., & Richards, M.A., (1996) Job Stress and satisfaction among palliative physicians. Palliative Medicine, 10(3): 185-194.

Griffith, J., Steptoe, A., & Cropley, M. (1999). An investigation of coping strategies associated with job stress and teachers. British Journal of Educational Psychology, 69, 517-531.

Häusser, J.A., Mojzisch, A., Niesel, M. and Schulz-Hardt, S., 2010. Ten years on: A review of recent research on the Job Demand–Control (-Support) model and psychological well-being. *Work & Stress*, *24*(1), pp.1-35.

Hoyie, R.H., & Panter, A.T. (1995). Writing about Structual Equation Models. In R. H. Hoyle (Ed.), Structural equation modeling: Concepts, issues, and applications (pp. 76-99). Thousand Oaks, CA: Sage.

Hu, L., & Bentler, P. M. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), Structural equation modeling: Concepts, issues, and applications (pp. 76-99). Thousand Oaks, CA: Sage.

James, L.R., Demaree, R.G., & Wolf, G. (1993). rwg : An assessment of within-group Interrater Agreement. Journal of Applied Psychology, 78(2), 306-309.

James, L.R., James, L.A., & Ashe, D.K. (1990). The Meaning of Organization : The Role of Counition and Virtues, In Schneider B. (Ed.) Organizational Climate and culture, Oxford, San Francisco, Jossey-Bass.

Johnson, J.V., & Hall E. (1988). Job Strain, work place, social support and cardiovascular disease A cross-sectional study of a random sample of the Swedish working population. American Journal of Public Health, 78: 1336-1342.

Joreskog, K.G., & Sorbom, D. (1993). LISREL 8, User's Reference Guide. SSI international.

Joyce W. F., & Slocum J. W. (1984). Collective Climate: agreement as a basis for defining aggregate Climates in organizations. Academy of Management Journal, 27, 721-742.

Kaplan, D. (1995). Statistical power in Structural Equation Modeling. In R. H. Hoyle (Ed.), Structural equation modeling: Concepts, issues, and applications (pp. 100-137). Thousand Oaks, CA: Sage.

Karasek, R., Theorell, T. (1990). Healthy Work: Stress, Productivity and the Reconstruction of Working Life. New York: Basic Books, Inc..

Karasek, R.A. (1979). Job demands, job decision latitude and Mental Strain: Implications for Job redesign. Administration Science Quarterly, 24: 285-307.

Karasek, R.A. Brisson, C., Kawakami, N., Houtman, L, Bongers, P., & Amick B. (1998). The Job Content Questionnaire (ICQ): An Instrument for Internationally Comparative Assessments of Psychosocial Job Characteristics. Journal of Oceupational Health, 3(4): 322-355.

Klein K.J, & Kozlowski S.W.J. (2000; Eds). Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions.San Francisco: Jossey- Bass.

Klein, K.J., Conn, A.B., & Sorra, J.S. (2001). Implementing computerized technology: An organizational 'analysis. Journal of Applied Psychology. Voi 86(5): 811-824.

Kozlowski, $.W.J., & Klein, K. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In Klein KJ, &

Kozlowski S.W.J. (Eds) Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions. San Francisco: Jossey-Bass.

Lazarus, R.S (1966). Psychological Stress and the coping process. New York: MeGraw- Hill.

Lazarus, R.S., & Folkman S., (1984). Stress, Appraisal, Coping. New-York: Springer Publishing Company.

Lindell, M.K., Brandt, C.J. (1997). Measuring interrater agreement ror ratings of a single target. Applied Psychologicel Measurement. 213): 271-278.

Litwin, G. H., & Stringer, R. A. (1968). Motivation and Greanizational Climate. Boston: Graduate School of Business Administration Division of Research, Harvard University.

MacCallum, R.C. (1995). Model Specification: Procedures, Stratezies, and Related issues. In R. H. Hoyle (Ed.), Structural equation riodeling: Concepts, issues, and applications (pp. 16-55). Thousand Oaks, CA: Sage.

Majer, V., & D'Amato, A. (2001). L'M_DOO, il questionario multidimensionale per la diagnosi del Clima Organizzativo, Unipress, Padova.

Majer, V., Marcato, A., & D'Amato, A. (eds., 2002). La dimensione psicosociale del Clima Organizzativo, FrancoAngeli, Mi.

Marocci, G., & Majer, V. (2002). J] Clima Organizzativo. Carocci, Roma.

Maruyama, G.M. (1997). Basics of Structural Equation Modeling. Sage, Thousand Oaks, CA. Maruyama, 1998,

Masterson, S.S., Lewis K., Goldman B.M., & Taylor, M.S. (2000). Integrating justice and social exchange: the differing effects of fair procedures and treatment on work relationships. Academy of Management Journal, 43(4), 738-748.

Mausner-Dorsch, H., & Eaton, W.W., (2000). Psychosocial work environment and depression: Epidemiologic assessment of the demand-control model. American Journal of Public Health. 90(11): 1765-1770.

McGregor, D. (1960). The Human side of entreprise. Blacklick: McGraw-Hill.

47 Moran, E.T., & Volkwein, J.F. (1992). The cultural appre@dch to ihe fornaiion of Organizational Climate. Human Relations, 45(1), 19-47.

Murphy, L.R., & Schoenborn, T.F. (Eds., 1987). Stress management in work setting. Cincinnaty, OH, NIOSH.

O'Connor, D., O'Connor, R., White, B.L., & Bundred, P.E. (2000). The effect of job Strain on British general practitioners' mental health. Journal of Mental Heuiih, 9(6): 637-654.

Pascual, E., Perez-Jover, V., Mirambell, E., Ivanez, G., & Terol, M.C. (2003). Job conditions, coping and wellness/Health outcomes in Spanish Secondary School Teachers. Psychology and Health, 18(4), 511-521.

Patterson, M., Warr, P., & West, M., (2004). Organizational climate and company productivity: The role of employee affect and employee level. Journal of Occupational & Organizational Psychology. 77 (2): 193-216.

Pisanti, R., Gagliardi, M.P., Razzino, S., & Bertini, M. (2003). Occupational Stress and Wellness among Italian Secondary Schoel Teachers. Psychology & Health. Special issue: The Job Demand-Control-Social Support Model and Wellness/Health Outcomes. 18(4):523-536..

Poole, M.S., & McPhee, R.D. (1983). A structurational analysis of Organizational Climate, in Putnam L. & Pacanowsky M. (Eds.) Communication and organizations, an interpretative approach, Sage, Beverly Hills. :

Pritchard, R.D., & Karasick B.W. (1973). The effects of Organizational Climate on managerial job performance and job satisfaction. Organizational Behavior and Human Decision Processes. 9(1): 126-146.

Quaglino, G.P., & Mander M. (1987). I climi orgdhizzativi, Tl Mulino, Bo.

Rahim, A.M., & Psenicka, C. (1996). A structural equations model of Stress, locus of control, social support, psychiatric symptoms, and propensity to leave a job. The Journal of Social Psychology, 136(1): 69-84.

Raykov, T., Tomer, A., & Nesselroade, J.R. (1991). Reporting Structural Equation Modeling Results in Psychology and Aging: Some Proposed Guidelines. Psychology & Aging. 6(4):499-503.

Reichers, A. E., & Schneider, B. (1990). Climate and culture: an evolution of constructs. In B. Schneider (Ed.), Organizational Climate and culture (5-39). San Francisco: Jossey-Bass.

Rout, U., Cooper, C.L., & Rout, J-Y., (1996). Job Stress among British general practitioners: predictors of job dissatisfaction and mental ill-health. Stress Medicine. 12: 155-166.

Schnall, P.L., Dobson, M., Rosskam, E. and Elling, R.H., 2018. *Unhealthy work: Causes, consequences, cures*. Routledge.

Schneider, B. (1983). Interactional Psychology and Organizational behavior. In L.L. Cummings, B.M., Staw (Eds.) Research in Organizational behavior (Vol. 5, pp. 1- 31). Greenwich, CT: JAI Press. .

Schneider, B. (Ed., 1990). Organizational Climate and culture, San Francisco, CA, Jossey Bass.

Schneider, B., & Bowen, D.E. (1995). Winning the service GARG, Boston, MA: Harvard Business School Press.

Schneider, B., & Reichers, A.E. (1983). On the etiology of Climates. Personnel Psychology. 36(1): 19-39.

Schneider, B., (2001). Organizational Climate. Risorsa Uomo, 8(3-4): 229-240.

Schneider, B., Salvaggio, A.N., & Subirats, M. (2002). Climate strength: a new direction for Climate research. Journal of Applied Psychology. 87(2): 220-229.

Schneider, B., White, S., & Paul, M.C. (1998). Linking service Climate and customer perceptions of service quality: Test of a causal model. Journal of Applied Psychology, 83, 150-163.

Schulz, R., Greenley, J.R., & Brown, R. (1995). Organization, management, and client effects on staff burnout. Journal of Health and Social, Behavior. 36(4): 333-345.

Singh, J., Goolsby, J., & Rhoads, G. (1994). Behavioral and psychological consequences of boundary spanning burnout for custdmer service representatives. Journal of Marketing Research, 31, 358-569. <

Sluiter, J.K., Frings-Dresen M.H.W, van der Beek, A.J., & Meijman, T.F. (2001). The relation between work-induced neuroendocrine reactivity and recovery, subjective need for recovery, and health status. Journal of Psychosomatic Research. Vol. 50(1): 29-37. a

Smith-Crowe, K., Burke, M.J., & Landis R.S. (2003). Organizational Climate as a moderator of safety knowledge-safety performance relationships. Journal of Organizational Behavior, 24: 861-876.

Smulders, P.G.W., & Nijhuis, F.J.N. (1999). Fhe Job-Demands-Job Control Model and absence behaviour: results of a 3-year longitudinal study. Work & Stress, £3(2): 115- 131.

Stansfeld S.A., Fuhrer, R., Shipley, M.J., & Marmot, M.G. (1999). Work characteristics predict psychiatric disorder: prospective results from the Whitehall II study. Occupational Environmental Medicine, 56: 302-307.

Taris, T. W., Schreurs, P. J. G., & Van Iersel-Van Silfhout, I. J. (2002). Job stress, job strain, and psychological withdrawal among Dutch university staff: Towards a dual-process model for the effects of occupational stress. Work & Stress, 15, 283-296.

Theobald, N.A., & Nicholson-Crotty, S. (2004) The many faces of span of control: Organizational Structure and Multiple Goals. Administration and Society.

Travers, C.,J., & Cooper, C.L. (1993a). Psychophysiological responses to teacher stress: A move toward more objective methodologies. European review of Applied Psychology. 44 (2): 137-146.

Travers, C.,J., & Cooper, C.L. (1993b). Mental health, job satisfaction and occupational Stress among UK teachers. Work and Stress. 7(3): 203-219.

Tsai, S.L. (1997). The development of a nurse Stress checklist“from English to Chinese version. Issues in Mental Health Nursing, 18(3): 247-57.

_ Tummers, G.E.R:, Janssen, P.P.M., Landeweerd, A., & Houkes, I. (2001). A comparative study of work characteristics and reactions between general and mental health nurses: a a analysis. Journal of Advanced Nursing 36 (1), 151-162.

Ullman, J.B. (2001). Structural Equation Modeling. In Tabachnick, B.G., & Fidell, LS. Using Multivariate Statistics — 4" Ed., (pp. 653-771), Allyn & Bacon, MA.

Vahtera, J., Kivimaki, M., Pentti, J., & Theorell T. (2000). Effect of change in the psychosocial work environment on sickness absence: a seven year follow up of initially healthy employees. Journal of Epidemiological Community Health, 54: 484- 493.

Van Horn, J.E., Schaufeli, W.B., & Enzmann, D. (1999). Teacher burnout and lack of reciprocity. Journal of Applied Social Psychology, 29(1): 91-108.

West, S.G., Finch, J.F., Curran, P.J. (1995). Structural Equation Modeis with nonnormai variables: Problems and Remedies. In¢R. H. Hoyle (Ed.), Structural equation modeling: Concepts, issues, and applications (pp. 56-75). Thousand Oaks, CA: Sage.

Williams, E.S., Konrad, T.R., Linzer, M., McMurray, J., Pathman, D.E., Gerrity, M., Schwartz, M.D., Scheckler, W.E. & Douglas, J. (2002) Physician, practice, and patient characteristics related to primary care physician physicai-health and mental- health: results from the Physician Worklife Study. Healtii Services Research, 370 121-43

Zohar, D., (2002). The effects of leadership dimensions, safety climate, and assigned

priorities on minor injuries in work- -groups, Journal of Organizational Behaviour, 23, 75-92. A

so .

FIGURES AND TABLES

Fig. 1. A process model.

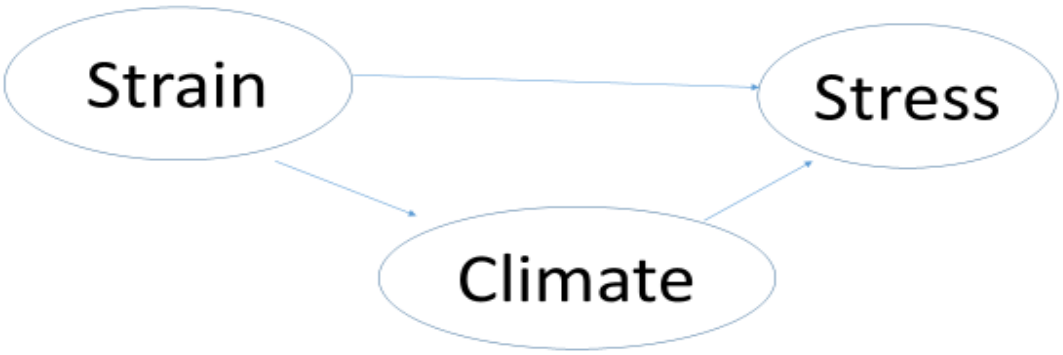

Fig. 2. Test of a 6-factor model of stress.

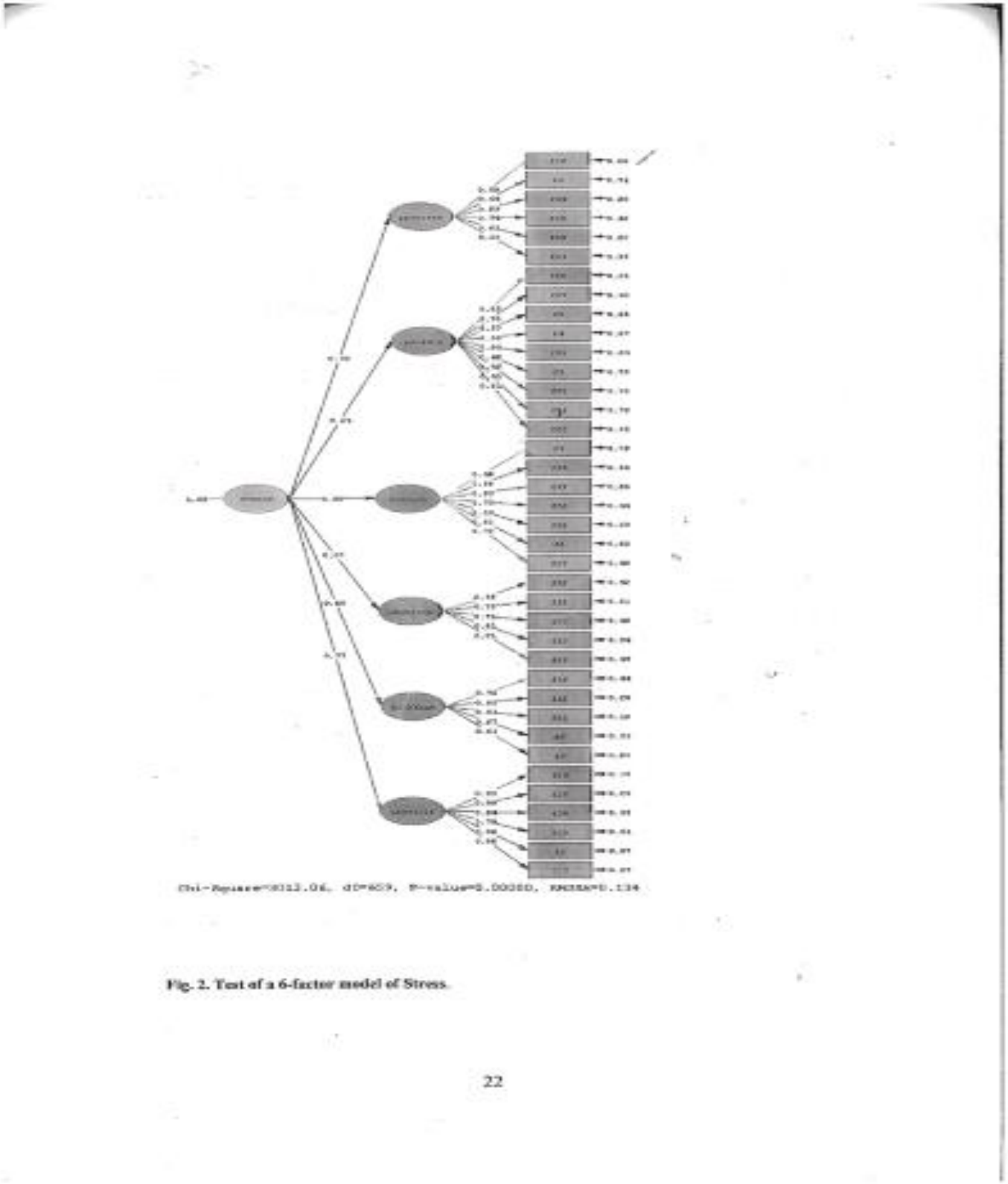

Fig. 2. Test of a 6-factor model of Stress.

Fig. 3. Strain: demand, control and support.

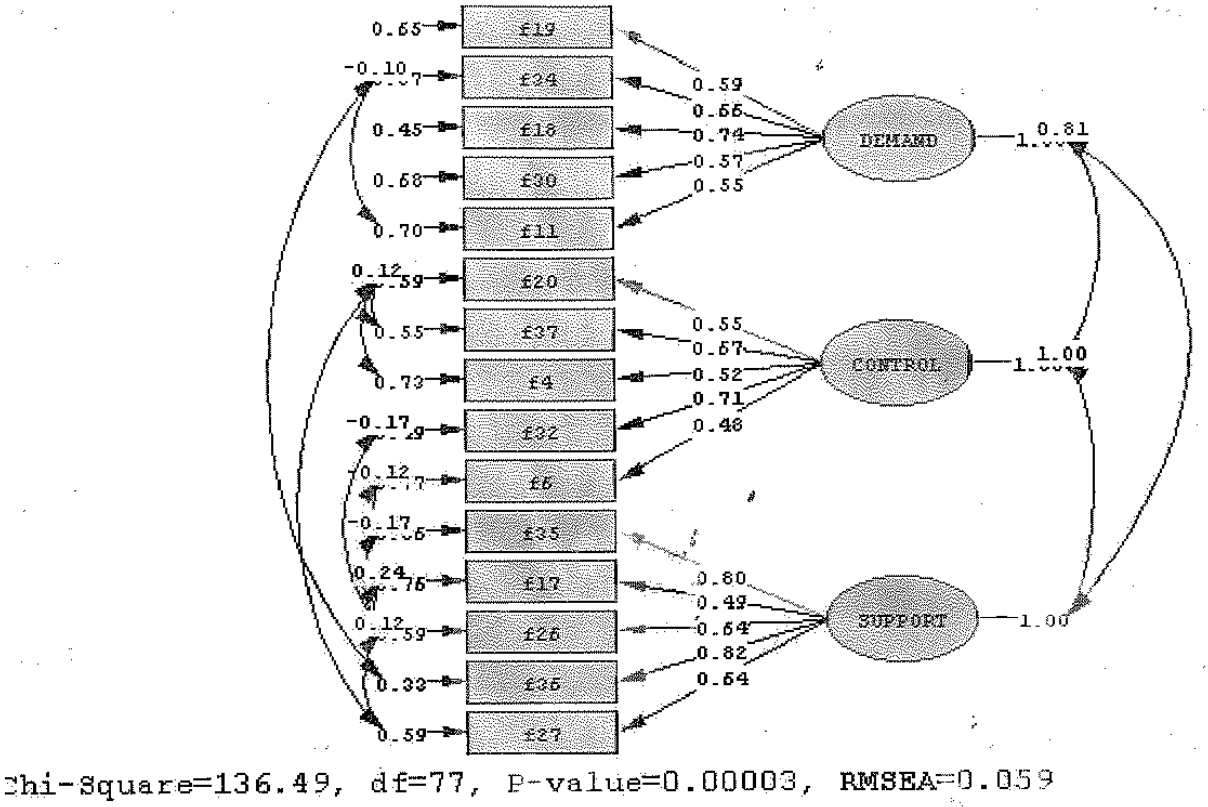

Fig. 4. Stress: Emotional and cognitive manifestations.

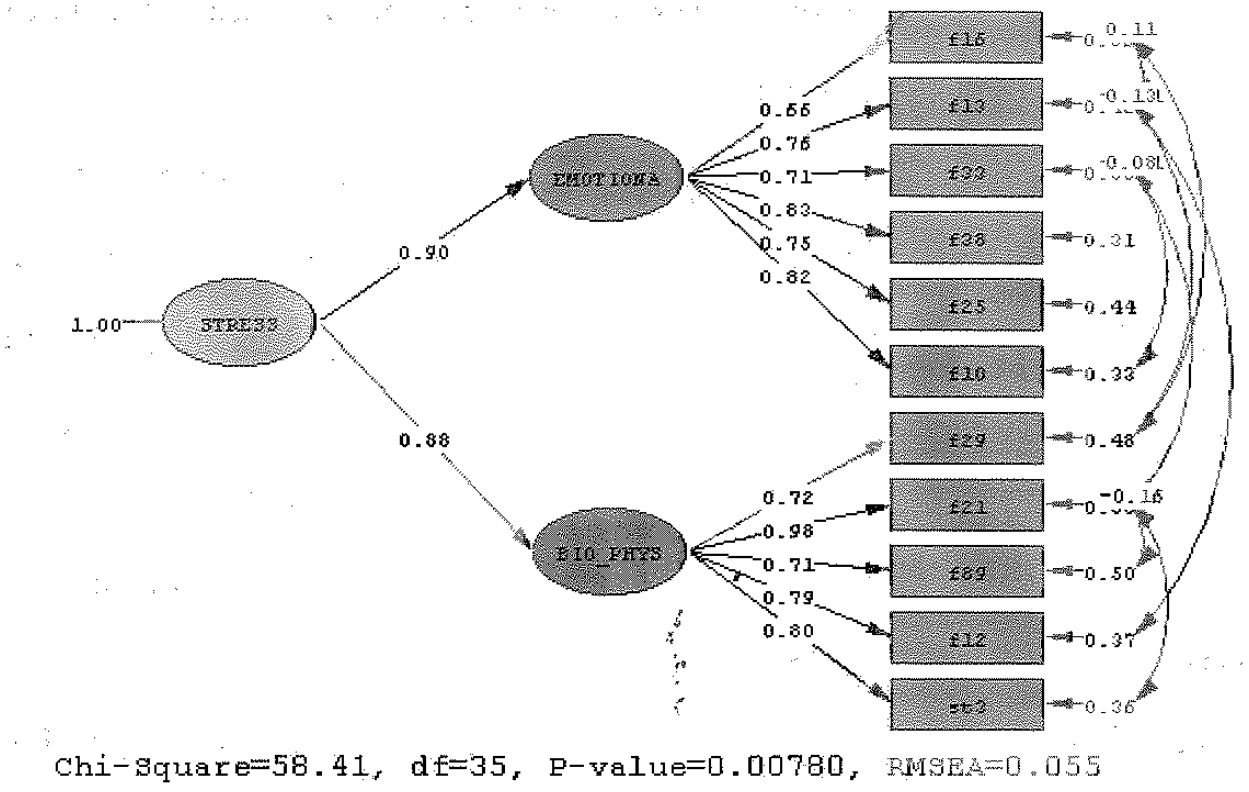

Fig. 5. From strain to stress: a process.

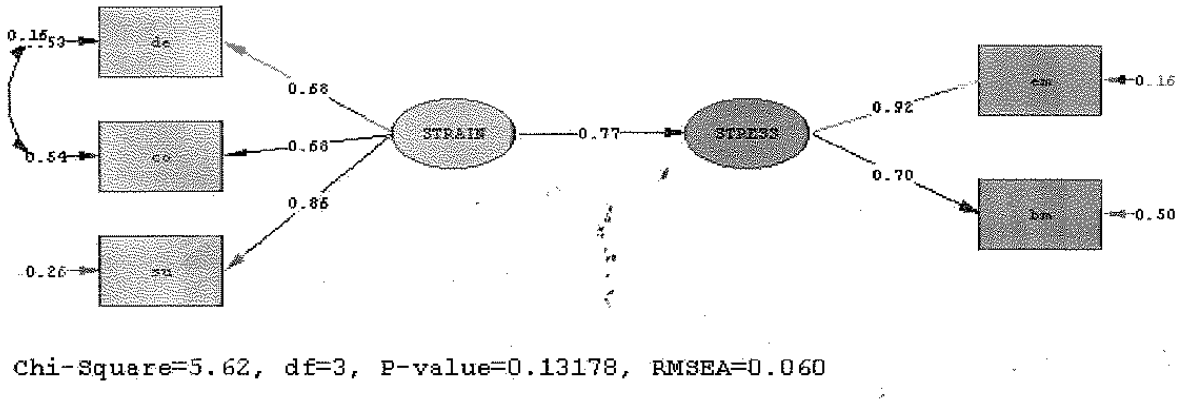

Fig. 6. CforO as a partial mediator between strain and stress.

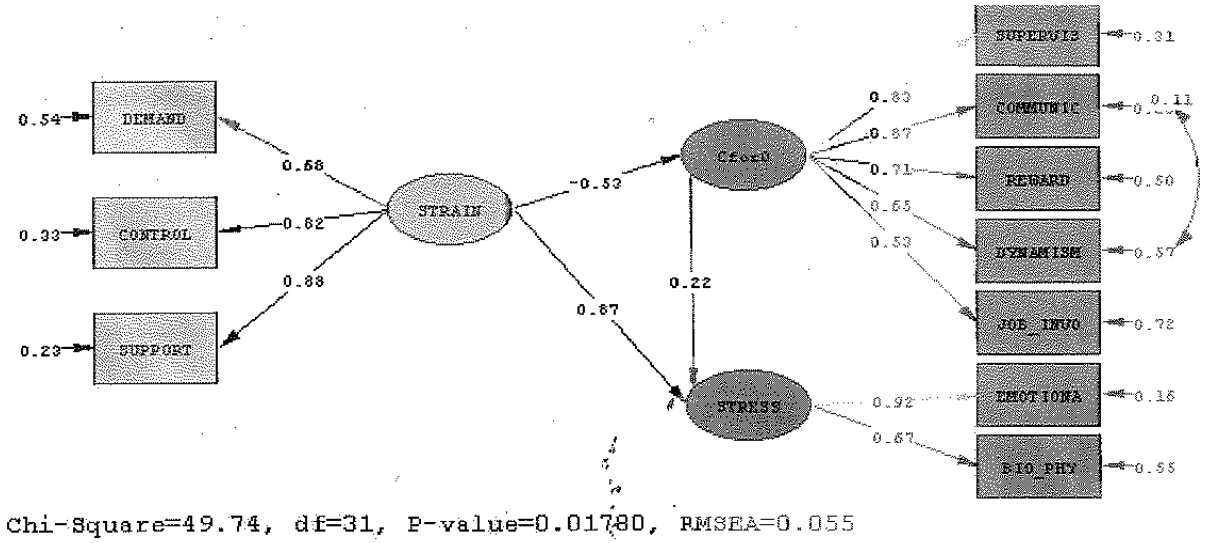

Fig. 7. CforE as a partial mediator between strain and stress.

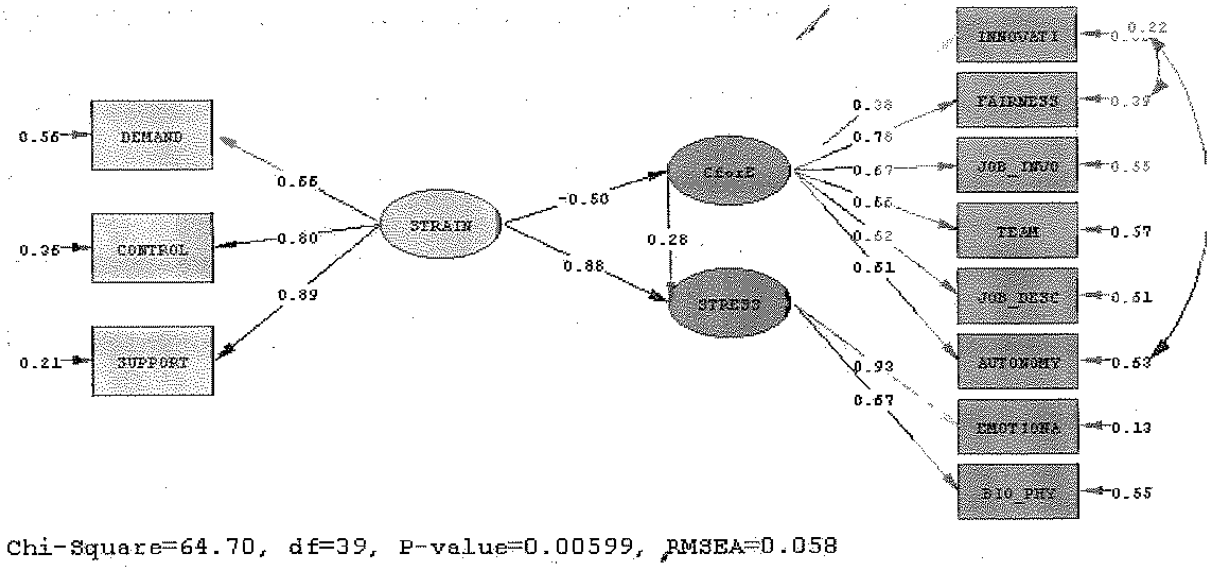

Table 1. Goodness of fit statistics

χ^2/df	RMSEA	RMR	SRMR	GFI	AGFI	CFI	NNFI	CN
3013.10/659	.134	.25	.13	.56	.50	.50	.47	38.77

Table 2. Strain: Goodness of fit indices

χ^2/df	RMSEA	RMR	SRMR	GFI	AGFI	CFI	NNFI	CN
136.49/77	.059	.085	.053	.92	.88	.95	.93	208.33

Table 3. Stress: Goodness of fit statistics.

χ^2/df	RMSEA	RMR	SRMR	GFI	AGFI	CFI	NNFI	CN
58.41/35	.055	.17	.034	.95	.91	.98	.97	206.24

Table 4. From strain to stress: Goodness of fit statistics.

χ^2/df	RMSEA	RMR	SRMR	GFI	AGFI	CFI	NNFI	CN
5.62/3	.060	.0082	.020	.99	.95	.99	.98	488.27

Table 5. Strain and climate: correlations.

		DEMAND	CONTROL	SUPPORT
Supervision	Pearson Correlation	-.335	-.369	-.394
	Sig. (2-tailed)	.000	.000	.000
Communication	Pearson Correlation	-.315	-.390	-.371
	Sig. (2-tailed)	.000	.000	.000
Reward	Pearson Correlation	-.285	-.239	-.278
	Sig. (2-tailed)	.000	.000	.000
Dynamism	Pearson Correlation	-.350	-.327	-.317
	Sig. (2-tailed)	.000	.000	.000
Innovativeness	Pearson Correlation	.027	-.144	-.107
	Sig. (2-tailed)	.683	.029	.106
Fairness	Pearson Correlation	-.133	-.299	-.273
	Sig. (2-tailed)	.041	.000	.000
Job_Involvement	Pearson Correlation	-.113	-.300	-.285
	Sig. (2-tailed)	.084	.000	.000
Team	Pearson Correlation	-.181	-.310	-.349
	Sig. (2-tailed)	.005	.000	.000
Job Description	Pearson Correlation	-.209	-.224	-.261
	Sig. (2-tailed)	.001	.001	.000
Autonomy	Pearson Correlation	-.156	-.219	-.280
	Sig. (2-tailed)	.017	.001	.000

Table 6. CforO: Goodness of fit statistics.

χ^2/df	RMSEA	RMR	SRMR	GFI	AGFI	CFI	NNFI	CN
49.74/31	.055	.016	.040	.95	.91	.98	.97	200.95

Table 7. CforE: Goodness of fit statistics.

χ^2/df	RMSEA	RMR	SRMR	GFI	AGFI	CFI	NNFI	CN
64.70/39	.058	.075	.054	.94	.91	.97	.95	186.57