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Original article

Occupational stress, job satisfaction and physical health in teachers



Le stress au travail, la satisfaction au travail et la santé physique chez les enseignants

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ABSTRACT

Introduction. – Changes within the teaching profession have been blamed for the high levels of stress reported by teachers. In recent decades, Italian schools have been characterised by continuous change, as a result of profound transitions that have affected political, social and economic development.

Objective. – This paper investigated the relationship between occupational stress, job satisfaction and physical health in Italian teachers. Specifically, our aim is to study the role of job satisfaction as a possible mediation role between work stressors and its effects on teachers' physical health (physical symptoms). In addition, we were interested in studying the direct effects of work stressors on the hypothetical outcomes (physical symptoms).

Method. – Data were collected via a questionnaire from a sample of 565 teachers working in different upper secondary schools in Italy. The booklet filled by the teachers consisted of 32 items that measure *perceived occupational difficulties, job satisfaction and physical symptoms*.

Results. – The results showed that workload, perception of work environment, teachers' perceptions of senior management and attitude towards change are specific perceived occupational difficulties of the Italian teachers involved in our research. In particular, workload and attitude towards change have significant direct effects on physical symptoms, and indirect effects on physical symptoms through job satisfaction. Also, job satisfaction decreases physical symptoms.

Conclusion. – The results suggest important implications for stress prevention in teachers. In fact, the level of stress and its consequences can be reduced and prevented through an accurate identification of its sources, with a positive effect on individual and organisational health.

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R É S U M É

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Introduction. – Les changements au sein de la profession enseignante ont été critiqués en raison des niveaux élevés de stress signalés par les enseignants. Au cours des dernières décennies, les écoles italiennes ont été caractérisées par un changement continu, à la suite de transitions profondes qui ont affecté le développement politique, social et économique.

Objectifs. – Cet article a pour objectif d'étudier la relation entre le stress au travail, la satisfaction au travail et la santé physique chez les enseignants italiens. Plus précisément, notre objectif est d'étudier le rôle de la satisfaction au travail comme médiateur possible entre les facteurs de stress au travail et ses effets sur la santé physique des enseignants (symptômes physiques). En outre, nous nous sommes intéressés à l'étude des effets directs des facteurs de stress sur les résultats hypothétiques (symptômes physiques).

Méthode. – Les données ont été recueillies au moyen d'un questionnaire auprès d'un échantillon de 565 enseignants travaillant dans différents lycées en Italie. Le livret rempli par les enseignants est composé de 32 éléments qui mesurent les facteurs de stress au travail, les difficultés d'emploi perçues, la satisfaction au travail et les symptômes physiques.

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Résultats. – Les résultats ont montré que la charge de travail, la perception de l'environnement de travail, les perceptions de la direction et l'attitude des enseignants envers le changement sont des facteurs de stress typiques de travail dans le contexte de l'école italienne. En particulier, la charge de travail et l'attitude envers les changements ont des effets directs significatifs sur les symptômes physiques, et des effets indirects sur les symptômes physiques par le biais de la satisfaction au travail. En outre, la satisfaction au travail diminue les symptômes physiques.

Conclusion. – Les résultats suggèrent des implications importantes pour la prévention du stress chez les enseignants. En fait, le niveau de stress et ses conséquences peuvent être réduits et empêchés par une identification précise de leurs sources avec un effet positif sur la santé individuelle et organisationnelle.

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1. Introduction

The experience of occupational stress in relation to different occupations has been subject to a large amount of research and interest in the topic shows no sign of waning. Several studies in the last 30 years have investigated occupational stress in teachers (Genoud, Brodard, & Reicherts, 2009; Greene, Abidin, & Kmetz, 1997; Johnson & Richards, 1983; Laugaa, Rascle, & Bruchon-Schweitzer, 2008; Ritvanen, Louhevaara, Helin, Väisänen, & Hänninen, 2006; Russell, Altmaier, & Van Velzen, 1987; Yazhuan, Qing, & Yugu, 2010) and have identified teaching as a particularly stressful occupation (Chaplain, 2008; Guglielmi, Simbula, & Depolo, 2009; Johnson et al., 2005; McShane & Von Glinow, 2005; Montgomery & Rupp, 2005; Pithers, 1995; Travers & Cooper, 1993). Changes within the teaching profession have been blamed for the high levels of stress reported by teachers (Moriarty, Edmonds, Blatchford, & Martin, 2001; Santavirta, Solovieva, & Theorell, 2007).

Some studies (Johnson et al., 2005; Travers & Cooper, 1993) revealed that teachers, as compared with other highly stressful occupations, experienced lower job satisfaction and poorer mental health. The experience of occupational stress is compared across a diverse set of occupations, and three stress related variables (psychological well-being, physical health and job satisfaction) are examined. The results revealed that teachers were reported as being the most stressed in regard to physical and psychological well-being and as having the lowest levels of job satisfaction.

Although there is a vast body of literature on teachers' stress (e.g., Bradley, 2007; McCormick, 1997; McCormick & Solman, 1992), we are not aware of studies that have explored at the same time the relationship among work stressors, job satisfaction and physical symptoms in the Italian school context.

For this reason, the purpose of this paper is to investigate together work stressors, job satisfaction and physical symptoms in the Italian school context, in order to contribute to the scientific discussion on teachers' occupational stress through the presentation of an empirical study that may offer interesting applications.

The present paper describes the first results of an action research commissioned to the authors by a Territorial Education Office, which among other tasks, is responsible for the reconnaissance of the training needs of school workers and promoting learning actions for head teachers and teachers. The action research aimed at reducing occupational stress and strengthening psychosocial factors that may mediate the negative effects of stress on the health of teachers.

The research involved the head teachers and teachers working in 20 different upper secondary schools in Italy, according to the assumption that in assessing occupational stress it is important to take into account context-specific characteristics (Sveinsdóttir, Biering, & Ramel, 2005), that are certainly well known by those who work daily in that context.

In the first step, this project involved 20 head teachers in two focus groups conducted in order to create a tool for investigating

typical school context sources of stress, according to the vantage point of those who run the school organisation. These tools were also discussed with some interested teachers. The topics that emerged were perceived occupational difficulties (which include difficulties in communication and relationships with colleagues and the leader, workload, work environment, and attitude towards change), job satisfaction and work-related physical discomfort.

In the second step, the head teachers invited 1015 teachers to participate in this research who completed a questionnaire exploring the topics previously identified by the head teachers with the support of the researchers.

Specifically, in this paper, our aim is to study the role of job satisfaction as a possible mediation role between perceived occupational difficulties and their effects on teachers' physical health (physical symptoms). In addition, we were interested in studying the effects of perceived occupational difficulties on the hypothetical outcomes (physical symptoms). We have tested a model of relationships between variables that can describe some critical aspects of the Italian teachers at a time of difficult transition such as at present.

We have studied teachers' occupational stress through an approach that includes both negative (physical symptoms) and positive (job satisfaction) indicators of organisational well-being. The paper also considers studies that have shown how many teachers are satisfied with and enthusiastic about their work (Roth, Assor, Kanat-Maymon, & Kaplan, 2007; Rudow, 1999), and that they are engaged in their jobs (Hakanen, Bakker, & Schaufeli, 2006). In fact, a healthy work environment can be reached not only through the absence of negative factors, but also by promoting positive characteristics.

The results suggest important implications for teachers' stress prevention. In fact, the level of stress and its consequences can be reduced and prevented through an accurate identification of its sources, with a positive effect on individual and organisational health (Israel, Baker, Goldenhar, & Heaney, 1996).

In the last part of the paper, we examine theoretical and practical evidence based considerations regarding the relations between work stressors, job satisfaction and health.

1.1. Occupational stress in teachers: work stressor, job satisfaction and health

Many studies over the past decade have investigated stressors in teaching (e.g. Brenner, Sorbom, & Wallius, 1985; Kyriacou, 2001; Shirom, Oliver, & Stein, 2009). A survey conducted by teacher trade unions (ETUCE, 2007) and reported by the European Agency for Safety and Health at Work (2008) has identified workload, role overload, lack of support by management, the increased number of students and their serious lack of discipline as major sources of stress for teachers.

Recent researchers found that teachers experience an increasing number of work assignments and a more hectic workday,

resulting in less time for rest and recovery; workload and time pressure are combined and are due to an increasing demand for paperwork, more frequent meetings, more frequent communication with parents, frequent changes and participation in a number of school development projects (Skaalvik & Skaalvik, 2010). Other studies (Nigidi & Sibaya, 2002; Olivier & Venter, 2003; Pas, Bradshaw, & Hershfeldt, 2012) found that the main antecedents of job stress among teachers are time pressure, poor work environment, administrative problems, students' behaviour and changes in the educational system. In regard to this, in their study Cox, Boot, Cox, and Harrison (1988) found that most teachers would not experience stress because of a single change but they would experience it in 'change after change' conditions, especially when they have little control. Further research shows that stress at school may also result from continuous innovations that have pervaded this context (Wilson, 2002). According to Vakola and Nikolaou (2005), stress levels experienced in the presence of change are determined by people's perceptions of change. In other words, workers who have a negative attitude towards change are more likely to experience high levels of stress. Also, according to Kennedy and Kennedy (1999), stress levels are determined by the perception of teachers towards change that can be influenced by their involvement in the process of change: a high level of involvement improves the perception of change. Even studies in the Italian context have emphasised the importance of teachers' perception of innovation in occupational stress (Steca, Picconi, & Gerbino, 2002).

A few studies in the Italian school context emphasise the importance of the physical environment, for example Caprara and Steca (2002) found that teachers' negative perceptions towards their work environment are determined by structures perceived as inadequate. Perception of responsibilities and role ambiguity are the main sources of stress that characterise the current Italian school context where teachers feel overloaded with educational responsibility and play an ambiguous role (Manetti, Rania, & Frattini, 2007).

The perception of the head teacher is another important dimension to consider in the studies about teachers' well-being or distress (Caprara, Barbaranelli, Petitta, Picconi, & Steca, 2002). The perception of the head teacher corresponds to the evaluation of his or her leadership style (Steca et al., 2002), and refers to the evaluation of the degree to which the school's different components measure up to teachers' expectations (Caprara & Steca, 2002). The same authors (Caprara et al., 2002) found that a positive perception of the head teacher's work determines other teachers' increase in motivation, while a negative perception may facilitate the emergence of unease. The perception of the head teacher, environment and innovation, affect teachers' attachment to school, job involvement and job satisfaction (Caprara et al., 2002; Coladarci, 1992).

To sum up, these studies have identified different types of work stressors typical of the teaching profession, including work environment conditions, changes in the educational system, workload, role ambiguity and senior management support.

This evidence has strongly characterised Italian schools in the past 15 years and for this reason our study aims to investigate which of some of the sources of stress identified in previous literature characterises the Italian school context at this crucial moment marked by 'change after change'. Consequently, our first hypothesis (H1) is that some work stressors, experienced by surveyed Italian teachers as perceived occupational difficulties, will be: perception of work environment, workload, teachers' perceptions of senior management and attitude towards change.

Numerous studies have indicated that stress may have an obvious effect on teachers' physical and mental health. Research evidence suggests that high levels of stress among teachers are associated with high levels of turnover, low job satisfaction and performance, and health problems (Hakanen et al., 2006; Pomaki & Anagnostopoulou, 2003; Williams & Gersch, 2004). Psychosomatic

symptoms are related to adverse environmental conditions (Yang, Ge, Hu, Chi, & Wang, 2009), ambiguity and conflict role (Manetti et al., 2007) and to a negative perception of change (Wilson, 2002; Yang et al., 2009) in the teaching profession. The heavy workload experienced by teachers tends to be the most detrimental stressor for their health conditions (Yang et al., 2009).

Several studies on teachers have investigated their job satisfaction (Akhtara, Hashmib, & Naqvic, 2010; Demirta, 2010; Duffy & Lent, 2009; Huang & Waxman, 2009; Lent et al., 2010; Moè, Pazzaglia, & Ronconi, 2010; Nir & Bogler, 2008; Somech & Drach-Zahavy, 2000), their state of health (Kovess-Masféty, Rios-Seidel, & Sevilla-Dedieu, 2007), the relationship between occupational stress and job satisfaction (Ben-Ari, Krole, & Har-Even, 2003; Klassen & Chiu, 2010; Prick, 1989; Smith & Bourke, 1992) and between occupational stress and health (DeFrank & Stroup, 1989; Hammen and DeMayo, 1982; Jin, Yeung, Tang, & Low, 2008; Yang et al., 2009). Job satisfaction seems to have a key role in avoiding dysfunctional behaviour within the school and it is antecedent to preventing occupational stress also in the Italian context (Caprara, Barbaranelli, Borgogni, & Steca, 2003; Cicotto, De Simone, Giustiniani, & Pinna, 2014).

Other studies on teachers (Akhtara et al., 2010; Caprara, Barbaranelli, Steca, & Malone, 2006; Demirta, 2010; Duffy & Lent, 2009; Huang & Waxman, 2009; Lent et al., 2010; Moè et al., 2010; Nir & Bogler, 2008; Somech & Drach-Zahavy, 2000) have identified as predictors of their job satisfaction working conditions, opportunities for growth, self-efficacy, support and personality traits. Liu and Ramsey (2008) have confirmed the existence of a direct negative relationship between workload and job satisfaction. The results of these studies show that job satisfaction increases when teachers perceive their work environment as supportive and that high job satisfaction has positive effects on life satisfaction. There is a close relationship between job satisfaction and psychosomatic symptoms. Previous research has suggested that the occurrence of psychosomatic symptoms, in terms of work-related stress, is also associated with low or no job satisfaction (Peltzer, Shisana, Zuma, Van Wyk, & Zungu-Dirwayi, 2009). Kovess-Masféty et al. (2007) have highlighted the risk to the mental health of teachers and identified as major risk factors the lack of support and the fear of physical and verbal abuse by colleagues and superiors.

Accordingly, there is empirical evidence that work stressors are associated with job satisfaction as well as with physical symptoms. Consequently, our second hypothesis (H2) is that job satisfaction decreases physical symptoms. Our third hypothesis (H3) affirms that job satisfaction mediates the effects of work stressors, experienced by participants as perceived occupational difficulties, on physical symptoms.

2. Method

2.1. Procedure and participants

By sharing the assumption that in assessing occupational stress it is important to take into account context-specific characteristics (Sveinsdóttir et al., 2005), from the beginning of the research we involved the head teachers, who have the role of managing the school. In the first action research session, two focus groups were conducted in order to create a tool for investigating typical school context sources of stress in an Italian setting. Each focus group lasted two hours and involved 10 head teachers recruited on the basis of their voluntary participation within a larger project of action research on stress in the school committed by the researcher for the Territorial Education Office. This project is aimed at preventing occupational stress and strengthening psychosocial factors that may mediate the negative effects of stress on the health of teachers.

The focus group sessions were conducted by a researcher and two observers. After a brief introduction by the participants, the researchers outlined the objectives and stimulated the debate on the subject of interest so that everyone took part in the conversation. The researchers also proposed a summary of the topics that emerged. The interactions were subsequently transcribed and submitted for content analysis with the purpose of surveying the recurrent topics that emerged during the discussion. The text corpus was split into small parts, called information units, each corresponding to a unique and short sentence. Each information unit was then classified into thematic categories by three independent researchers at different moments. Categories that achieved a measure of agreement equal to 70% were chosen. The topics that emerged were: organisational culture, communication, relationships with colleagues and the leader, workload, role ambiguity and role conflict, work environment, attitude towards change, job dissatisfaction and work-related physical discomfort.

The researchers presented and discussed these results with the 20 head teachers and 10 teachers who voluntarily decided to participate based on their interest in the project, directing the discussion on the choice of the shared dimensions to be investigated. In a participatory and collaborative way, typical of action research (Reason & Bradbury, 2001), the participants describe their concerns and explore what others think, and through discussion they determined what to utilise.

The categories selected were: *perceived occupational difficulties* (which included difficulties of communication and relationships with colleagues and the leader, workload, work environment, attitude towards change), *job satisfaction* and *physical symptoms*.

Once the dimensions to be included in the research were chosen, the researchers presented participants with some instruments available from the literature for the detection of these dimensions. Regarding job satisfaction and physical symptoms two scales were chosen from the literature (see next section), while for the detection of perceived occupational difficulties, researchers, head teachers and teachers decided to create a questionnaire capable of detecting the context and specificity of the Italian schools involved in the research. The choice of a new questionnaire (specially built upon the actors' point of view) was more justified, demonstrating that a familiarity with terms and concepts of the daily discourse of teachers and school principals was a major factor for the intervention implied by the action-research cited in the Introduction. The work stressors identified and labelled as *perceived occupational difficulties* were then revised in 28 statements. After a 50 teachers pre-test, we reached the final scale of the *perceived occupational difficulties*, which consisted of 21 statements (e.g., 'The management is open to suggestions and contributions', 'New law makes me uneasy', 'The climate and the brightness of the local work is adequate', 'I have too many things to do in relation to the time available').

The second step of our action research was the administration of questionnaires to teachers. The survey instrument was delivered to the teachers by their head teachers. For two weeks an urn was made available for the teachers to deposit their filled questionnaires. The questionnaires were then delivered to the researchers, entered into a database and processed.

Initially, the total sample was made up of 1015 teachers. Subsequently, respondents who did not respond to at least 80% of the items on the questionnaire were deleted, reducing the number of participants to 742, of which there were 177 men (23.85%) and 565 women (76.15%). In this paper we selected only women (565) for the data analysis because they represented the largest sample and taking into account the differences between men and women in this paper would have required significant theoretical and empirical depth from the study. The mean age of the 565 women teachers was 45 years (SD=8.57), the average tenure in the organisation

was nine years (SD=7.74) and the average employment seniority in teaching was 21 years (SD=9.02).

2.2. Measures

The booklet filled by the teachers consisted of 32 items. For each item, teachers used a 5-point response scale.

Perceived occupational difficulties by teachers were measured by 21 items. Teachers responded to each item by indicating the frequency of behaviour on a 5-point scale (1 = never, 5 = all the time).

According to the global approach that assesses *job satisfaction* based on an individual's overall affective reaction to his or her job (Spector, 1997), this construct was measured using the Brief Overall Job Satisfaction measure II (Judge, Locke, Durham, & Kluger, 1998). The respondents evaluated their perceptions of satisfaction concerning their current job on a response scale from 1 to 5 (1 = strongly disagree, 5 = strongly agree). The five items were: 'I feel fairly well satisfied with my present job', 'On most days I am enthusiastic about my work', 'Each day of work seems like it will never end', 'I really enjoy my work', 'I consider my job rather unpleasant'. Six items measured teachers' physical symptoms (e.g. headache, stomach ache, palpitations). These items were selected and adapted from Spector and Jex's (1998) 12-item scale. Respondents were requested to answer each item on the basis of their experiences over the previous 12 months, using a five-point response scale (1 = never, 5 = all the time).

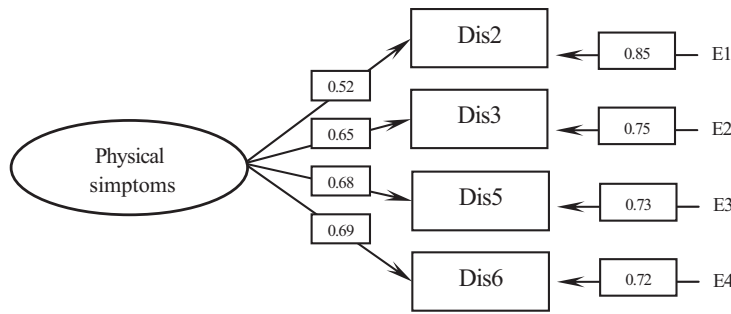
2.3. Data analysis

In order to confirm our hypotheses, we conducted an Exploratory Factor Analysis (EFA) using SPSS, Confirmatory Factor Analysis (CFA) and Path Analysis (PA) using Structural Equations Program (EQS) (Bentler, 1995).

Through randomisation the sample of 565 participants was divided into two subgroups, according to the following percentages: 30% of respondents were used for the application of Exploratory Factor Analysis ($N=169$), and the remaining 70% ($N=396$) underwent Confirmatory Factor Analysis, Path Analysis and correlation analysis. For the study to be accepted, using the SEM, the sample size should be not less than 100 cases (Boomsma & Hoogland, 2001). In this research, each of the factors to be measured had three to six indicators, i.e. six to 12 parameters. However, the Confirmatory Factor Analysis for latent factor included 17 items, i.e. 34 parameters. Applying Bentler and Chou's 10:1 rule of thumb, a sample size of 60 to 340 was required (Bentler & Chou, 1987). Applying Flynn and Percy's (2001) rule of thumb, a sample size of 30 to 170 would suffice. Thus, in terms of sample size, the study met these requirements.

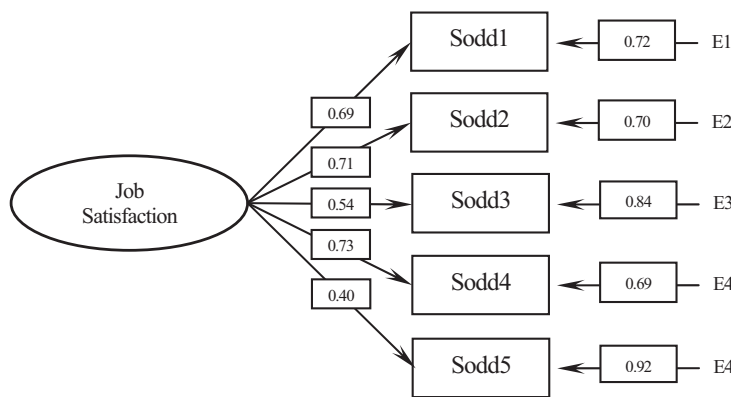
The following indices were used for the Confirmatory Factor Analysis and Path Analysis all tests to establish fit: the χ^2 goodness of fit statistic, the Comparative Fit Index (CFI; Bentler, 1989, 1990), the Non-Normed Fit Index (NNFI; Bentler & Bonett, 1980; Tucker & Lewis, 1973), the Root Mean Square Error of Approximation (RMSEA; Steiger, 1989), the Goodness of Fit Index (GFI) and the Adjusted Goodness of Fit Index (AGFI; Bentler, 1989, 1990). The CFI and NNFI are considered acceptable considered acceptable when they are greater than .90 and the RMSEA is equal to or smaller than .08 (Bentler, 1990; Steiger, 1990). The GFI is considered acceptable when it is greater than .90 and smaller than 1.00, and the AGFI is considered acceptable when it is greater than .85 and smaller than 1.00 (Bentler, 1989, 1990).

The internal consistency of each scale was measured through Cronbach's alpha. The correlation between variables was calculated using the r Pearson coefficient. Also, we conducted an analysis of the influence of age, seniority or length of service on Job Satisfaction and Physical symptoms with linear regression analysis.



Fit index	χ^2 (df)	<i>p</i> -value	CFI	RMSEA	NFI	NNFI	GFI	AGFI	Cronbach's Alpha
Values	4.58 (2)	.10	.98	.08	.96	.94	.98	.91	.73

Fig. 1. CFA physical symptoms.



Fit index	χ^2 (df)	<i>p</i> -value	CFI	RMSEA	NFI	NNFI	GFI	AGFI	Cronbach's Alpha
Values	7.61 (5)	.17	.99	.04	.97	.98	.95	.95	.75

Fig. 2. CFA job satisfaction.

3. Results

CFA were conducted on the scales Job Satisfaction and Physical symptoms, although these scales are widely used in the literature and by many authors. We have made this choice to get a measure of the factors that was as reliable as possible discarding any item that does not saturate the factor, and that could make the measure weaker. In Fig. 1 are shown the results of the CFA for the Physical symptoms scale. The best indexes of fit and reliability are obtained with the four item indicated.

In Fig. 2 are shown the results of the CFA for the Job Satisfaction scale, in which all the items contribute to explain the factor.

We conducted an EFA with Promax rotation on the 21 items processed with the head teacher looking to identify some of the many stressors for teachers, labelled perceived occupational difficulties. The results are shown in Table 1. We have obtained four factors that explain the 53.17% of the total variance.

Table 1 also indicates which items were excluded in the Confirmatory Factor Analysis, so the scale is decreased from the initial 21 items to 17 endpoints, as shown below. In Table 2 we have named factors that describe the perceived occupational difficulties and the correlation with the items they form.

Pearson correlations range from a minimum of $r = .61$ to a maximum of $r = .82$. These results indicate good internal consistency.

We verified the descriptive properties of the items used to describe the perceived occupational difficulties. The results are shown in Table 3.

The indices show that the values of skewness and kurtosis are approximated to those of a normal curve (Peat & Batton, 2005). The values of asymmetry varies between $-.62$ and $+0.76$ and those of kurtosis are between -1.04 and $+0.16$. The statistics shown in Table 3 were calculated on the portion of the sample dedicated to the Analysis Exploratory Factor.

Confirmatory Factor Analysis shows good fit indices to confirm the existence of the four latent factors. Given the high number of samples and taking into account other fit indices it can be said that the model is considered acceptable, despite the significance of χ^2 being less than .05 (Fida & Barbaranelli, 2005). In fact, the ratio $\chi^2/df = 1.46$ is within the range of acceptability of the model (Brown, 2006; Bollen, 1989). Some items that did not saturate the latent factor were eliminated, reducing the scale to 17 items.

The first factor, 'Perceptions of senior management', corresponds to the evaluation of managers' leadership style and refers to their perception by teachers: their ability to engage in decisions and to take care of teachers' professional development. High scores in this scale indicate a positive perception of the managers.

The second factor, 'Workload', describes the perception of workload and inadequacy, which derives from the feeling of not being

Table 1
Exploratory factor analysis of *perceived occupational difficulties*.

	Factors			
	1	2	3	4
% of variance explained	23.49	14.35	8.30	7.03
Item/saturation				
PoC5	.86			
PoC7	.80			
PoC2	.75			
PoC4	.74			
PoC1	.68			
PoC6	.68			
PoC3 ^a	.49			
load1		.80		
load3 ^a		.69		
load5		.60		
load4		.58		
load2		.51		
amb2			.78	
amb4			.73	
amb3			.72	
amb1			.70	
Inn5 ^a				.74
Inn4				.68
Inn2				.56
Inn3				.40
Inn1 ^b				
Cronbach's alpha	.84	.70	.80	.75

^a Confirmatory Factor Analysis has excluded these items.

^b Item Inn1 was excluded because value of saturation <.4

Table 2
Item-total correlations.^a

Factors Item	1 Perceptions of senior management	2 Workload	3 Work environment	4 Attitude towards change
PoC1	.68			
PoC2	.75			
PoC4	.78			
PoC5	.78			
PoC6	.69			
PoC7	.80			
load1		.81		
load2		.61		
load4		.79		
load5		.81		
amb1			.81	
amb2			.77	
amb3			.81	
amb4			.77	
Inn2				.79
Inn3				.82
Inn4				.77

^a All Pearson correlations have $p < .001$

Table 3
Properties of the items (*Occupational difficulties perceived*).

Item	Mean	SD	Skewness	Kurtosis
PoC1	3.42	1.01	-.44	.03
PoC2	3.60	1.00	-.45	-.17
PoC4	3.48	0.98	-.26	-.33
PoC5	3.16	1.11	-.18	-.68
PoC6	2.74	1.08	-.05	-.55
PoC7	3.71	1.02	-.55	-.12
Inn2	2.95	1.00	.11	-.04
Inn3	3.92	1.17	-.62	-.51
Inn4	3.66	1.18	-.61	-.30
amb1	3.27	1.20	-.44	-.70
amb2	3.22	1.07	-.31	-.51
amb3	2.67	1.00	.08	-.57
amb4	3.42	1.08	-.53	-.31
load1	2.46	1.08	.13	-1.04
load2	2.01	1.00	.63	-.28
load4	2.15	1.07	.76	.16
load5	2.50	1.07	.22	-.70

Table 4
Pearson correlation of variables.

	1	2	3	4	5	6
1. Physical symptoms	–					
2. Job satisfaction	–.42	–				
3. Perception of senior management	–.24	.31	–			
4. Work environment	–.30	.26	.51	–		
5. Workload	.39	–.39	–.44	–.42	–	
6. Attitude towards change	–.34	.37	.27	.28	–.44	–

All Pearson correlations have $p < .001$.

Table 5
Path analysis: models and fit index.

Model	Diagram	Fit index	χ^2 (df)	p -value	CFI	RMSEA	NFI	NNFI	GFI	AGFI
Saturated model		Fit index not computed	– (0)	–	–	–	–	–	–	–
Best model		.51	.51 (1)	.82	1.00	.00	1.00	1.04	.99	.99
Alternative model 1		Fit index not computed	– (0)	–	–	–	–	–	–	–
Alternative model 2		.64	17.14 (1)	.00	.64	.26	.94	.86	.98	.76

WL = Workload; PSM = Perception of senior management; AC = Attitude towards change; WE = Work environment; JS = Job Satisfaction; PHS = Physical symptoms.

able to deal with job demands concerning the role or the tasks. High scores in this scale indicate a high qualitative and quantitative workload.

The third factor, perceptions of ‘Work environment’, concerns perception of physical environment, in terms of cleanliness, brightness and air-conditioning, furniture and equipment suitability. High scores in this scale indicate a positive perception of the work environment.

Finally, the fourth factor, ‘Attitude towards change’, is the negative or positive attitude towards changes, specifically those that concern technological or legislative innovation within the working context. High scores in this scale indicate a positive attitude towards change.

The first hypothesis (H1), which stated that some work stressors, experienced by surveyed Italian teachers as perceived occupational difficulties, include the perception of work environment, workload,

teachers’ perceptions of senior management and attitude towards change, was supported.

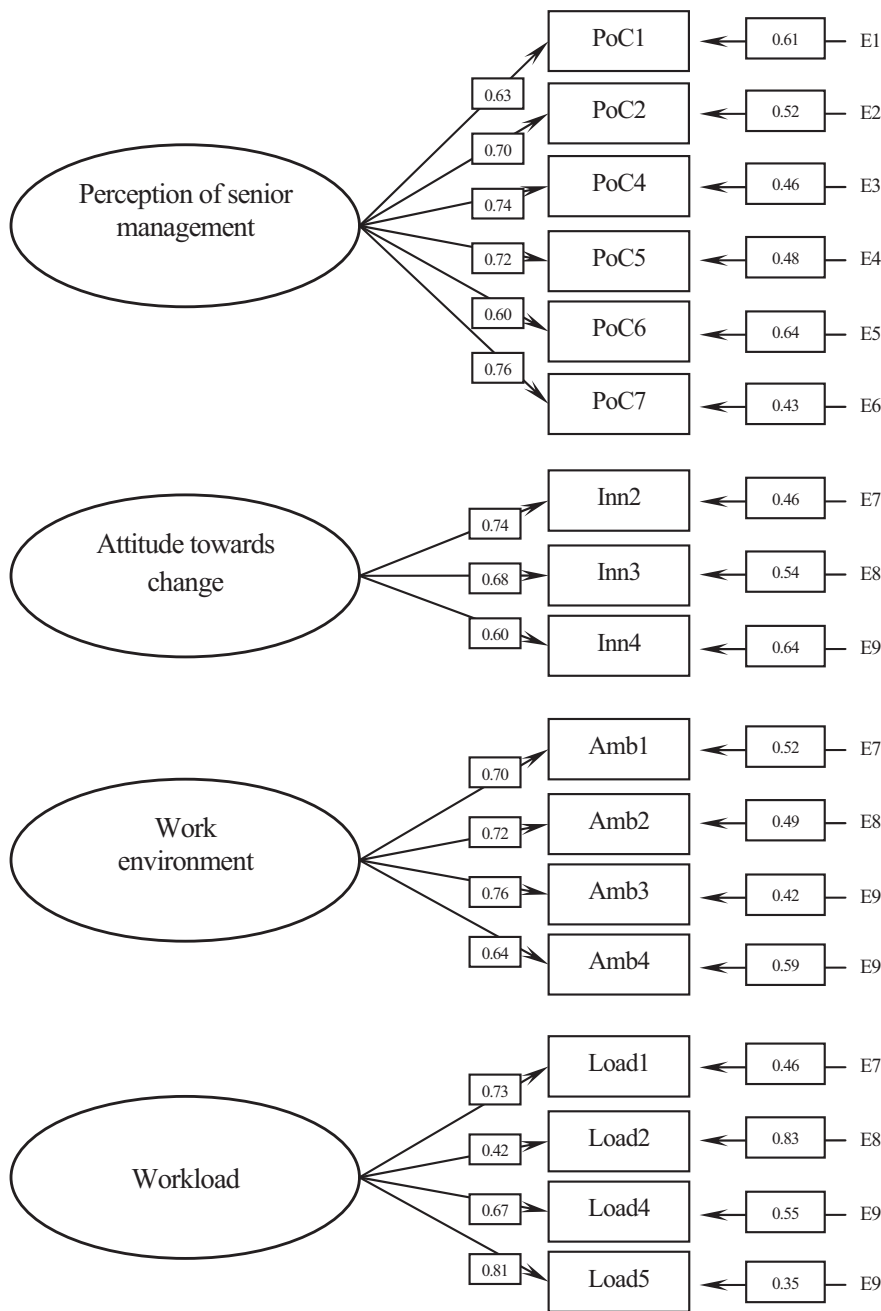
Linear regression analysis revealed no significant influence of age, seniority or length of service on organisational Job Satisfaction and Physical symptoms ($p > .05$).

In addition, we wanted to observe the correlation between all the factors studied. The results are shown in Table 4.

All the variables are associated with each other at a significance level less than .001. In particular, our interest concerns the strong relationship between Physical symptoms and Job Satisfaction, and between these and the other variables.

The particular type of relationship between each variable has been verified through the Path Analysis.

On the basis of theoretical references we first tested a saturated model, which has not resulted as valid. We gradually proceeded to make the model more parsimonious, based on the significance of



Fit index	χ^2 (df)	p-value	CFI	RMSEA	NFI	NNFI	GFI	AGFI
Values	165.41 (113)	.00	.97	.05	.99	.96	.90	.90

Fig. 3. CFA perception of senior management, attitude towards change, work environment and workload.

the indices. We also tested alternative models with different paths. Ultimately, the second model of Table 5, indicated ‘best model’, shows fit index better than others. The final model is shown in Fig. 4 with the indices of the effects and the explained variance.

In accordance with our hypothesis H2, the impact of Job Satisfaction in reducing Physical symptoms appears evident ($\beta = -.27$). Teachers’ Perceptions of senior management, Workload and Attitude towards change have a direct effect on Job Satisfaction. These influences explain 22% of the Job Satisfaction variance. Also,

we see that Workload, Work environment and Attitude towards change have a direct effect on Physical symptoms, along with Job Satisfaction. The direct and indirect effects of these dimensions explain about 26% of the variance in Physical symptoms.

In accordance with our hypothesis H3, we used the Sobel Test (Sobel, 1982) to verify the mediating effect of Job Satisfaction between perceived occupational difficulty and Physical symptoms. We found that Job Satisfaction is a mediator for Workload ($z = 4.67$; $p < .001$) and Attitude towards change ($z = 4.49$; $p < .001$).

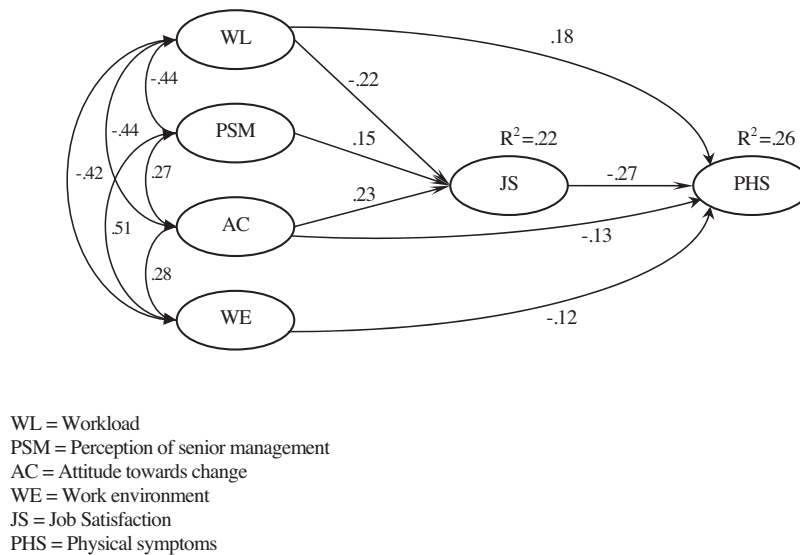


Fig. 4. Final model.

4. Discussion

Earlier research on teachers has investigated their job satisfaction (e.g. Akhtara et al., 2010; Demirta, 2010), their state of health (e.g. Kovess-Masféty et al., 2007), the relationship between occupational stress and job satisfaction (e.g. Ben-Ari et al., 2003) and between occupational stress and health (Yang et al., 2009). However, we are not aware of studies that have investigated the relationship between work stressors, job satisfaction and physical symptoms in the Italian school context. Our research analysed the complexity of the relationships between stress, job satisfaction and physical health in Italian teachers.

The results of the present study strongly support the intuitions and conclusions reported in and suggested by previous studies.

We have also studied the effects of perceived occupational difficulties mediated by job satisfaction on the physical symptoms in a sample of Italian teachers.

In line with previous studies, we tested a model where perceived occupational difficulties exert direct effects and indirect effects mediated by job satisfaction on physical symptoms of teachers. Our model has been partially confirmed.

We hypothesised that some variables such as perception of work environment, workload, teachers' perceptions of senior management and attitude towards change can be some of the perceived occupational difficulties of the teaching profession (H1).

According to numerous previous studies (for example, Chaplain, 2008; Guglielmi et al., 2009; Johnson et al., 2005; Ritvanen et al., 2006; Travers & Cooper, 1993; Yazhuan et al., 2010) our study identified that Italian teachers today are particularly at risk of stress. In fact, excessive work demands and lack of resources produce negative consequences for both teachers and schools. Changes within the teaching profession lead to increasing work demands and always less resources causing high levels of stress for teachers (Moriarty et al., 2001; Santavirta et al., 2007) and producing other negative consequences for workers (teachers) and organisations (schools), such as burnout, decreased physical and mental health, poor job involvement and low job satisfaction (Bakker & Demerouti, 2007). According to the first hypothesis of our study, consistent with the results of previous research in different countries (Cooper & Marshall, 1976; ETUCE, 2007; Kyriacou, 2001; Manetti et al., 2007; Nigidi & Sibaya, 2002; Olivier & Venter, 2003; Sutherland & Cooper, 1988, 1990; Vakola & Nikolaou, 2005), we have found that perceived occupational difficulties for the Italian teachers involved

in our research are; perception of work environment, workload, teachers' perceptions of senior management, and attitude towards change.

We hypothesised also that job satisfaction decreases physical symptoms (H2) and that job satisfaction can be a moderator in the relationship between perceived occupational difficulties and physical symptoms (H3). Our data confirm the relationships between physical symptoms and some perceived occupational difficulties (Spector & Jex, 1998) and suggest that high levels of stress among teachers are associated with low job satisfaction (Ben-Ari et al., 2003; Klassen & Chiu, 2010; Prick, 1989; Smith & Bourke, 1992) and health problems (Pomaki & Anagnostopoulou, 2003; Williams & Gersch, 2004).

The second hypothesis, which assumed that job satisfaction decreases physical symptoms, was confirmed. This result is in line with earlier research that shows that job satisfaction is negatively correlated with physical and psychosomatic symptoms (Peltzer et al., 2009). Job satisfaction has a key role in avoiding dysfunctional behaviour within the organisation and it is an antecedent to preventing occupational stress (Borgogni, Miraglia, Petitta, Gallo, & Mazzotta, 2009; Caprara, Barbaranelli, Borgogni, & Steca, 2003; Cicotto et al., 2014). A possible explanation for this finding is that job satisfaction mediates the effect of perceived occupational difficulties on physical symptoms, as predicted in our third hypothesis, which was confirmed only partially.

We also found that workload, work environment and attitude towards change have a direct effect on physical symptoms, along with job satisfaction. Consistent with other research in fact, psychosomatic symptoms are related to adverse environmental conditions (Yang et al., 2009) and to a negative perception of change (Wilson, 2002; Yang et al., 2009) and the teachers' workload is the most detrimental stressor for their health conditions (Yang et al., 2009).

According to literature that suggests studying the perceptions of the workplace (Caprara, Barbaranelli, Borgogni, Petitta, & Rubinacci, 2003), our data show the active role of teachers' perceptions of senior management on job satisfaction. In fact, teachers' perceptions of senior management only have a direct effect on job satisfaction (Scheopner, 2010). The perception of the head teacher that corresponds to the evaluation of his or her leadership style (Steca et al., 2002) and refers to the evaluation of the degree to which the school's different components measure up to the teachers' expectations (Caprara & Steca, 2002), also affects teachers' job satisfaction (Caprara et al., 2002; Coladarsi, 1992).

Our final model (Fig. 3) shows that only the effects of workload and attitude towards change on physical symptoms are mediated by job satisfaction. We have tried to speculate why job satisfaction mediates only the relationship between workload/attitude towards change and physical symptoms, and not those between work environment/perceptions of senior management and physical symptoms.

In our sample job satisfaction does not mediate the relationship between perceptions of senior management and physical symptoms such as trouble sleeping, headache, acid heartburn, because in our model there is not a direct effect by the perceptions of senior management on physical symptoms. It is possible that in the actual Italian school context, collaboration, mutual respect, support, characterise the relationship between teachers and head teachers (Caprara, Barbaranelli, Borgogni, Petitta, et al., 2003; Simbula, 2010; Simbula, Guglielmi, & Schaufeli, 2011).

Also in our sample, job satisfaction does not mediate the relationship between work environment and physical symptoms because in our model there is not a direct effect of work environment on job satisfaction. Although some studies find a relationship between work environment and job satisfaction (Caprara et al., 2002; Coladarci, 1992), our model does not, probably because the teachers surveyed derive more satisfaction from good relations with the leaders, a comfortable workload and positive attitude towards change rather than a perception of the physical environment in terms of cleanliness, brightness, air-conditioning, furniture and equipment suitability.

These results must be closely examined in expanded studies in other contexts.

In summary, these results demonstrate that workload, perception of work environment, teachers' perceptions of senior management and attitude towards change are perceived occupational difficulties for the Italian teachers involved in our research. In particular, workload and attitude towards change have significant effects on physical symptoms, and indirect effects on physical symptoms through job satisfaction. Also, job satisfaction decreases physical symptoms. Our data confirm the relationship between occupational stress and job satisfaction (Ben-Ari et al., 2003; Klassen & Chiu, 2010; Prick, 1989; Smith & Bourke, 1992) and between occupational stress and health (DeFrank & Stroup, 1989; Hammen and DeMayo, 1982; Jin et al., 2008; Yang et al., 2009) in the teachers interviewed.

5. Conclusions, implications and limitations

Our study investigates at the same time the relationship between perceived occupational difficulties, job satisfaction and physical symptoms, which have not previously been studied together in the literature regarding teaching. The results show that the principal perceived occupational difficulties of the Italian teachers involved in our research are workload, perception of work environment, teachers' perceptions of senior management and attitude towards change, and that workload and attitude towards change have effects on physical symptoms, and also through job satisfaction, that job satisfaction decreases physical symptoms. These results support the intuitions and conclusions reported in previous studies and provide clear evidence regarding the importance that teachers' job satisfaction may have in the prevention of stress and the promotion of well-being. The level of stress and its consequences can be reduced and prevented through accurate identification of its sources, with a positive effect on individual and organisational health (Israel et al., 1996).

Investigating how perceived occupational difficulties affect changes in the work-related psychological responses of teachers is critical to a better understanding of teacher well-being in the school organisation.

Our findings have heuristic relevance for the Italian teachers who participated in our research and offer useful suggestions for planning and implementing actions and specific interventions for the school context aimed at preventing occupational stress, improving teachers' job satisfaction and consequently their psychophysical health and well-being.

In recent decades, Italian schools have been characterised by continuous change. The introduction of school autonomy in the Italian legislature (DPR n. 275/1999) has marked a corporate restructuring of the educational system, of the management of economic resources and of the educational goals transforming schools into societies with new tasks and responsibilities (Caprara, Barbaranelli, Borgogni, Petitta, et al., 2003). The 'Head Teacher' becomes 'School Manager', the costs and the number of schools have been cut and the number of teachers has been drastically scaled down by Gelmini's Reform (Law n. 169/2008). Teachers have been overwhelmed by new demands and new expectations, increasing paperwork, more frequent meetings, more frequent communication with parents and frequent participation in a number of school development projects (Skaalvik & Skaalvik, 2010). As suggested by the data from this study, most teachers, with a negative attitude towards change, can experience stress because of 'change after change' conditions, especially when they have little control, a situation that characterises Italian teachers today (Cox et al., 1988). Furthermore, in such a complex moment of change which the Italian school system is undergoing, it is crucial to plan interventions aimed at managing the changes taking place and which act on the attitude towards change of the teachers and on innovation.

In order to decrease workload and improve teachers' perceptions of senior management can be important to take into account the organisation of work and an effective leadership that could improve teachers' attitude towards change. Our data also show the effect of workload on physical symptoms; it is useful to implement actions and interventions to impact on workload, and even if it is a less crucial dimension, on the work environment. As suggested by de Ruyter, Wetzels, and Feinberg (2001) stress caused by teachers' workload can be reduced through actions aimed at supporting a leadership style that will increase autonomy and individual empowerment, and as the results of this study suggest, through actions aimed at improving communication through participation and sharing.

The teachers' perceptions of senior management are, according to respondents, a possible work stressor in teaching. From this result it is desirable that schools invest in training head teachers through actions which support and develop adequate competencies in managing collaborators. Only a capable leadership which is able to involve teachers in decision-making, is willing to listen and accept proposals and contributions from everyone, using circular clear and comprehensive communication, enhancing different competencies and recognizing the results achieved, and which offers opportunities for professional training and updating, can produce quality and well-being. A leadership of this kind can surely contribute to the creation of a good perception of social context on the part of teachers and so have an influence on their job satisfaction and their psychophysical health.

To increase teachers' job satisfaction and therefore prevent occupational stress, in fact, it is crucial to assist head teachers so that they may find a policy to manage their staff based on involvement of teachers in decision-making, availability of the management team to listen and accept proposals and contributions by everyone, use of a clear and comprehensive circular method of communication, acknowledgement of different competencies and of the results reached, possibility of professional development and growth and the opportunity to have professional training and updating.

In the final step of this action research, a follow-up of the data will be realised with teachers and head teachers where some of the actions will include a planned intervention with proposals strongly anchored to the results. The involvement, from the beginning of the project, of teachers and their leaders should facilitate adherence to the implemented actions. The familiarity with the terms and concepts used in this research from the daily discourse by teachers and head teachers, confirmed the good choice of using a new questionnaire for investigating the perceived occupational difficulties, specifically built upon the actors' point of view. This has facilitated the sharing of the research results and the subsequent action planning aimed at the prevention of occupational stress for the teachers surveyed and promotion of their well-being at work.

This study presented has certain limitations: it does not take into account important stressors such as organisational factors, student's attitudes and behaviours in the classroom; it does not consider the role that personal and dispositional characteristics (e.g. self-efficacy) have in determining the perceptions of senior management and job satisfaction. Furthermore, it does not take into consideration commitment, another attitude towards work studied in the literature in relation to the perceptions of social context and job satisfaction. Additionally, successive studies will include some of these factors in the model and this study will be replicated in different contexts. Also, the data analysis has included only women and this is certainly a reduced view of occupational stress among teachers. Moreover, we conducted a single collection of data, future research should examine the generalisability of the conceptual model proposed in the present study to teachers serving at two or three other data collections.

Finally, our conceptual model may serve to monitor the phenomenon of teachers' stress for capitalising on a theory that provides clear guidance for promoting change and well-being in schools.

Declaration of interest

The authors declare that they have no competing interest.

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