

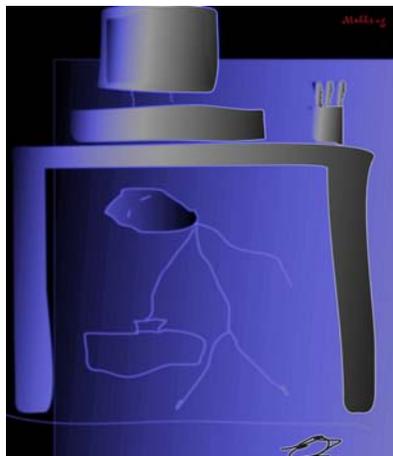


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**Aggressive behavior at work: Investigating and integrating the  
target's and actor's perspectives**



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## Chapter 1

### Introduction

Workplace aggressive behavior, defined as behavior carried out by an individual or a group of individuals that harms a co-worker or others in a work-related context (Schat & Kelloway, 2005), has been a topic of increasing attention in the last 15 years (Aquino & Thau, 2009; Barling, Dupré, & Kelloway, 2009). Aggressive behavior is different from violent behavior in that the latter causes or is intended to cause physical harm (e.g. intentionally hitting or pushing someone at work), while the former may involve non-physical behavior such as humiliating or isolating someone at work. Thus aggressive behavior is a broader phenomenon than violent behavior, and may also include violent behavior.

To try to understand the causes and consequences of aggressive behavior at work, researchers have focused either on the experiences of targets or on the experiences of actors/perpetrators. European researchers, perhaps due to the very strong tradition in occupational health research (Barling & Griffiths, 2003; Karasek & Theorell, 1990), have mainly focused on the target's perspective, while North American researchers have more often taken the actor's perspective and have been relatively less interested in the experience of victims (Aquino & Thau, 2009). Within each of these two perspectives, there has been a proliferation of constructs in trying to capture the workplace aggression phenomenon (Aquino & Thau, 2009; Spector & Fox, 2005), with the most frequently investigated constructs appearing in Table 1. However, as can be seen from the presented definitions (Table 1) and as has already been acknowledged (Fox & Spector, 2005; Neuman & Baron, 2005), there is a great deal of overlap between the different concepts both within each perspective and across them. This is one of the reasons why there is a call (Fox & Spector, 2005) for more integrative research in this area.

This thesis has been prepared through a series of studies that focus on aggressive behavior at work and tries to advance the current understanding by tackling it from both the target's perspective and the actor's perspective. Furthermore, an attempt will also be made to integrate both perspectives, with the aim of not only exploring one of the possible links between undergoing aggression and acting aggressively, but also of investigating work-environmental and personal antecedents that may create the common context for the experiences of aggression as reported by both targets and actors.

**Table 1.** Constructs defining aggressive behavior at work

Construct	Perspective	Definition
Workplace harassment (Björkqvist et al., 1994, pp. 173-174)	Target	“Repeated activities, with the aim of bringing mental (but sometimes also physical) pain, and directed towards one or more individuals who, for one reason or another, are not able to defend themselves”.
Workplace bullying/mobbing (Einarsen et al., 2003, p. 15)	Target	“Harassing, offending, socially excluding someone or negatively affecting someone’s work tasks. In order for the label bullying to be applied to a particular activity, interaction or process, it has to occur repeatedly and regularly (e.g. weekly) and over a period of time (e.g. about six months)”.
Emotional abuse (Keashly & Jagatic, 2003, p. 33)	Target	“Interactions between organizational members that are characterized by repeated hostile verbal and nonverbal, often nonphysical behaviors directed at a person(s) such that the target’s sense of him/herself as a competent worker and person is negatively affected”.
Workplace incivility (Anderson & Pearson, 1999, p. 457)	Target	“Low-intensity deviant behavior with ambiguous intent to harm the target, in violation of workplace norms for mutual respect. Uncivil behaviors are characteristically rude and discourteous, displaying a lack of regards for others”.
Victimization (Aquino et al., 1999, p. 260)	Target	“Individual’s perception of having been exposed, either momentarily or repeatedly, to the aggressive acts of one or more other persons”.
Workplace aggression (Neuman & Baron, 2005, p. 21)	Actor	“Any form of behavior directed by one or more individuals in a workplace toward the goal of harming one or more others in that workplace (or the entire organizations) in ways the intended targets are motivated to avoid”.
Abuse against others (Spector et al., 2006, p. 448)	Actor	“Harmful behaviors directed towards coworkers and others that harm either physically or psychologically through making threats, nasty comments, ignoring the person, or undermining the person’s ability to work effectively”.
Interpersonal deviance (Bennet & Robinson, 2000, p. 349)	Actor	Workplace deviance (i.e. “voluntary behavior that violates significant organizational norms and, in so doing, threatens the well-being of the organization or its members, or both”) targeted towards individuals.

As far as the experience of targets of aggression is concerned, following a European tradition in occupational health research, the focus of this thesis is on the phenomenon of workplace bullying (Einarsen, Hoel, Zapf & Cooper, 2003; Leymann, 1990a; 1996), which has received much attention in the last decade or so but which still presents some aspects that deserve further investigation. Thus, the first objective of the thesis is to increase the available knowledge on bullying, by focusing in particular on the potential contribution of personality and working conditions in the occurrence of the phenomenon.

As regards the experience of actors of aggression, the focus of this thesis is on abusive behavior against co-workers and others (Spector, Fox, Penney, Bruursema, Goh, & Kessler, 2006) and the objective is to test a model of the phenomenon, namely the stressor-emotion model (Spector & Fox, 2005), which places great emphasis on the role of job-related affective experiences as critical antecedents of abuse. Therefore, offering a comprehensive test of the stressor-emotion model of abusive behavior at work is the second objective of the thesis.

The third objective of the thesis is to integrate the experiences of actors and targets of aggressive behavior at work, by exploring possible links between working conditions and personal factors, workplace bullying and abuse. Specifically, since research has shown that *a*) bullying and abuse may be related to the same poor working conditions and ‘hot’ temperaments (Andersson & Pearson, 1999), and that *b*) being the target of bullying is related to extremely intense negative emotional reactions such as anger, anxiety and fear (Leymann, 1990a; Zapf & Einarsen, 2005) – i.e. those reactions that are critical factors for engaging in abusive behavior against others (Spector et al., 2006) – then a model of aggression is explored in which working conditions and personal factors lead to abuse, and being the target of bullying acts as a mediating process. Research trying to integrate the target’s and actor’s perspectives of aggression at work is rare, while only this integrative approach may perhaps lead, as has been suggested (Fox & Spector, 2005), to a more thorough understanding of the phenomenon, including the implicated work-environmental and personal processes.

In the following sections, to help understand the scale of the workplace aggression phenomenon, some prevalence estimates are first presented. Then, the three main objectives of the thesis as introduced above are described in further detail.

*Aggressive behavior at work: some prevalence estimates*

Prevalence estimates, usually based on self-reports of victims, suggest that aggressive behavior is a very widespread phenomenon in the modern world of work. The most recent European working conditions survey (European Foundation, 2007) indicates that, at European level, 5% of workers report having been subjected to different forms of aggression (e.g., harassment and discrimination on different grounds) in the last 12 months, and an identical 5% reports having been exposed to physical violence or threats of violence. This means that, in absolute terms, each of the two forms of aggression regards almost 12 million workers. As far as Italy is specifically concerned, according to the Italian National Institute of Statistics (ISTAT, 2008) 4.6% of workers report being currently exposed to harassment and intimidation at work, and 1.6% to physical violence or threats of violence. Although prevalence of both kinds of phenomena is lower than the prevalence of other psychosocial risks, such as excessive workload – which is reported by 14.5% of Italian workers – they do affect together almost 1.5 million workers, which is a dramatically high number.

Of course there are wide variations in exposure according to sociodemographic variables and occupation. Gender seems to explain a small gradient in exposure to harassment and intimidation (ISTAT, 2008), with female workers being more exposed (5.6%) than male workers (4.1%), while there are no differences by gender in exposure to violence and threats of violence (females = 1.6%; males = 1.7%). As far as the occupational sector is concerned, the two sectors most at risk (ISTAT, 2008) are public administration, with a prevalence of 7.3% for psychological violence and 5.0% for physical violence or threats of violence, and the health sector, with a prevalence of the same phenomena of 8.7% and 2.7%, respectively. Data at European level confirm these trends (European Foundation, 2007). It should be noted that these occupational sectors are more exposed also because the job involves contact with a potentially aggressive public (e.g. angry patients). As a matter of fact, European data (European Foundation, 2007) indicate that violence from the public (11.4%) is indeed more frequent than violence from colleagues (6.1%); however the latter prevalence suggests that other factors, such as for example a particular organizational context, must also be involved.

While these statistics coming from general population surveys may not be scientifically rigorous in defining the investigated phenomena, there is agreement among experts that aggressive behavior at work, in its different forms, constitutes an emerging psychosocial risk

(European Agency for Safety and Health at Work, 2005; 2007), with the potential to impact on the health of the population as a whole (European Commission, 2005).

### *Advancing the understanding of workplace bullying*

The phenomenon of bullying was described approximately 20 years ago by Leymann (Leymann, 1990a), who defined it as “hostile and unethical communication which is directed in a systematic way by one or a number of persons mainly toward an individual” (p. 120). Research in this area has documented that bullying may have stigmatising effects, leading to severe stress reactions at a level which is more extreme than that usually found in organizational stress research (Zapf & Einarsen, 2005). According to Leymann (Leymann & Gustafsson, 1996), the typical reaction to bullying is post-traumatic stress disorder (PTSD; APA, 2000). Furthermore, Leymann suggested that bullying could also lead to the suicide of the victim (Leymann, 1990a, 1996). However, despite much research on the effects of bullying has been carried out, the latter hypothesis of a relationship between bullying and suicide has not received empirical attention beyond some clinical case reports (e.g. Groeblinghoff, & Becker, 1996).

Since the beginning of research on bullying, there has been much debate among researchers and practitioners on its causes, with many studies (e.g. Brousse, Fontana, Ouchchane, Boisson, Gerbaud et al., 2008; Coyne, Seigne, & Randall, 2000; Hansen, Hogh, Persson, Karlson, Garde et al., 2006; Kivimäki, Virtanen, Vartia, Elovainio, Vahtera et al., 2003) supporting the idea (Zapf & Einarsen, 2005) that pre-existing personality characteristics may be important. However, research in this area has rarely investigated the personality profile of victims by using a comprehensive clinical personality assessment system, for which normative data are also available. Only in this way may a clearer picture of victims’ personality be obtained, a picture that also includes possible clinically relevant psychopathological tendencies. Profiling the personality of bullying victims with such an assessment tool and studying the relationship between the emerged profile and a measure of exposure to bullying, may help in shedding light on the role of the personality in becoming a victim of the phenomenon.

Thus Chapter 2 of this thesis (Relationships between bullying at work and MMPI-2 personality profile, post-traumatic stress symptoms and suicidal ideation and behavior) focuses on the relationship between exposure to bullying, on one hand, and the Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) profile of victims and their level of suicidal thoughts and behavior on the other. Building upon

previous research (Groeblichhoff, & Becker, 1996; Leymann & Gustafsson, 1996; Matthiesen & Einarsen, 2001) the main hypotheses of the reported study are that victims of bullying would show a typical MMPI-2 personality profile and furthermore, that this profile would be related to exposure to bullying. Third, that exposure to bullying would be positively related to suicidal thoughts and attempts.

The most widely used measure at international level to investigate workplace bullying is the Negative Acts Questionnaire (Einarsen & Hoel, 2001; Einarsen, Hoel, & Notelaers, 2009; Einarsen & Raknes, 1997), which explores different bullying behaviors, mainly directed at undermining the reputation of the victim at work (e.g. spreading gossip or rumours) and at disturbing or impeding work performance (e.g. being given tasks with unreasonable deadlines). A potential limitation of the Negative Acts Questionnaire is that, with its 22 items, it is a relatively long tool to measure a single construct. This is a disadvantage for occupational health research, because usually the measurement of bullying is taken together with the measurement of other variables and constructs, which means that the final survey tool may become a very long questionnaire. This, in turn, may increase attrition and undermine the reliability of the collected data. It may be quite useful, then, to have a brief scale available with sound psychometric properties to measure exposure to the phenomenon.

Thus, Chapter 3 of the thesis (Assessing the bullying risk in organizations: Contribution to the Italian validation of the Short Negative Acts Questionnaire–S-NAQ) presents the Italian validation of a short version of the Negative Acts Questionnaire (Notelaers & Einarsen, 2008), which consists of nine items tapping three different dimensions of bullying: Work-related bullying, person-related bullying and social isolation. The main hypothesis explored in Chapter 3 is the position that the postulated 3-factor structure of the S-NAQ holds in Italian organizational data. Furthermore, it also explores the hypothesis that the same structure is invariant (Cheung, 2008) in a clinical sample, i.e. a sample of victims who contacted mental health counselling services because they felt they were victims of bullying.

Research on how bullying develops in organizations is relatively recent. The work environment hypothesis (e.g. Hauge, Skogstad, & Einarsen, 2007), which states that bullying is a consequence of poor psychosocial conditions at work, has recently received increasing attention. These would lead to work-related stress, which in turn would increase the chance of conflict occurrence and that this conflict develops into a bullying situation. There is indeed some evidence (Agervold & Mikkelsen, 2004; Skogstad, Einarsen, Torsheim, Aasland, & Hetland,

2007), including longitudinal evidence (De Raeve, Jansen, van den Brandt, Vasse, & Kant, 2008), that distressing working conditions such as role stressors, high workload and low decision latitude are related to interpersonal conflict and bullying. However, the available studies do not consider the potential effect of the personality in investigating the role of working conditions in explaining bullying. If personality is postulated to be a critical antecedent of bullying (Zapf & Einarsen, 2005), then personality should be taken into account in examining the effect of the work environment on bullying, since it may well be a critical third factor.

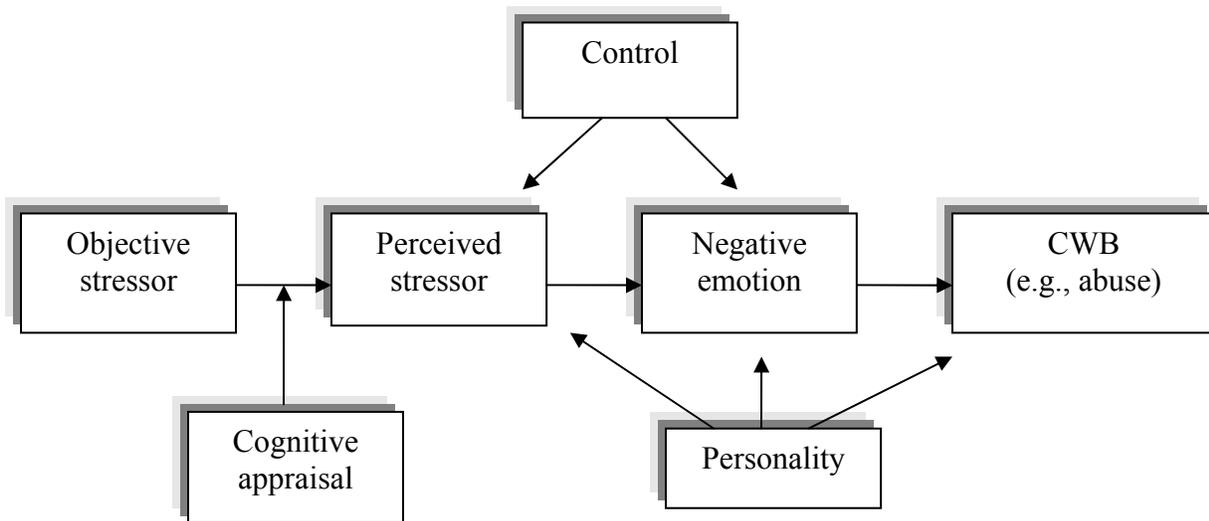
Thus Chapter 4 of the thesis (Workplace bullying and its relation with work characteristics, personality, and post-traumatic stress symptoms: An integrated model) develops and tests a model of bullying and its consequences that include both potentially precipitating conditions such as workload and family-to-work conflict, and neuroticism, a personality trait which has been consistently related to bullying (e.g. Coyne et al., 2000). Importantly, this study also includes organizational resources such as control over work and social support that may mitigate the effect of poor working conditions on bullying. As a further original feature, this study considers post-traumatic stress disorder (PTSD) as a potential outcome of the bullying process. The relationship between workplace bullying and post-traumatic stress symptomatology has only been investigated in non-organizational samples of victims (e.g. Balducci, Alfano, & Fraccaroli, 2009), mainly on victims who contact mental health counselling services, who may only represent the most extreme cases of bullying or cases where the sequence of events following the bullying (e.g. expulsion from the organization) may be the true precipitating factor. This means that it is not known whether the relationship between bullying and PTSD symptoms also holds in an organizational context. Thus, the main hypotheses explored in Chapter 4 of the thesis are that job stress inducing factors are positively related to bullying and job stress protective factors are negatively related to bullying, even after controlling for the effect of neuroticism. Furthermore, that bullying mediates the relationship between work environmental factors and PTSD symptoms. Finally, following traditional conceptualizations (e.g. Spielberger, Vagg, & Wasala, 2003) of job resources, according to which they may offset the effect of negative working conditions on stress and stress-related outcomes, it is also expected that job resources would moderate the relationship between job stress inducing factors and bullying, so that when job resources are high, job stress factors have a weaker impact on bullying. This would confirm that bullying behaves as a typical outcome of the stress process such as, for example,

burnout (e.g., Schaufeli & Bakker, 2004), supporting the view that bullying may indeed be an interpersonal correlate of job stress.

*Testing the stressor-emotion model of abusive behavior at work*

When investigating workplace aggressive behavior it is important not only to focus on the target perspective, but also triangulate this perspective with that of the actor so that a better understanding of factors and processes leading to the phenomenon may be achieved. For example, if similar work environmental conditions are found to be predictive of aggressive behavior from both the target's perspective and the actor's perspective, then the importance of those conditions in triggering the process leading to aggressive behavior is strengthened.

Researchers have long tried to understand the antecedents of counterproductive work behavior (CWB) in general and abusive behavior in particular. The main focus has been on the personality characteristics that may predict these phenomena, so that organizations can select-out potential employees showing such predictive tendencies. Meta-analyses (Berry, Ones, Sackett, 2007; Hershcovis, Turner, Barling, Arnold, Dupré et al., 2007) on the correlates of different forms of CWB have shown that big-five characteristics, particularly emotional stability/neuroticism (or negative affectivity) and agreeableness, seem to be particularly important as far as abuse is concerned. Another stream of research in this area has tried to broaden the perspective on the causes of CWB by examining the role of working conditions that may trigger the phenomenon, including personality as a crucial moderator. Within this stream of research the stressor-emotion model of CWB has been proposed (Spector & Fox, 2005). According to this model, abusive behavior is considered a stress response (Fox, Spector, & Miles, 2001), which in turn is caused by poor working conditions such as organizational constraints – i.e. factors that impede work performance. The stressor-emotion model is strongly rooted in the human aggression theory (Neuman & Baron, 2005), since it postulates that negative working conditions provoke frustration and arouse emotionally critical internal states, with the latter being the immediate antecedents of abuse against others and other forms of CWB. Furthermore, the stressor-emotion model borrows the concept of appraisal from classical stress theory (Lazarus & Folkmann, 1984), and insists on the fact that it is the meaning attached to the environmental conditions that is the critical factor for understanding the abusive actions. A graphical representation of the stressor-emotion model (Spector & Fox, 2005) is given in Figure 1.



**Figure 1.** The stressor-emotion model (Spector & Fox, 2005).

Thus the model postulates a causal chain from the objective environment to perception, to emotion, to behavior. Furthermore, the model hypothesises that personality may play its moderating effect at different levels in this chain, such as at the level of perception by altering the threat associated with a specific environmental condition, or at the level of emotion by influencing the individual's emotional response. Control over work is another important factor in the model, with more control being an important resource in moderating perception of the stressor and/or the following emotional reaction to it. Thus the stressor-emotion model aims at comprehensively describing the process leading to CWB. Despite this, most research on the model has only tested individual linkages between its different parts, determining a need for more research on the overall strength of the model.

Chapter 5 of the thesis (The stressor-emotion hypothesis of counterproductive work behavior: Testing a mediation/moderation model of abusive behavior at work) attempts an overall test of the stressor-emotion model of abuse, which includes most of the linkages between the factors of importance as hypothesised by the model. The tested model integrates a stressor factor made by different hindrance job demands; a resources factor made by helpful organizational elements including control over work and social support; personality; job-related affect and abuse. The central hypothesis is that job-related negative affect mediates the relationship between job demands and job resources, on one hand, and abusive behavior on the

other. Furthermore it is hypothesised that neuroticism strengthens the relationship between job demands and job-related negative affect, thus reinforcing the path leading to abuse in the hypothesised model. Finally it is expected that different job resources, including control over work, buffer the effect of job demands on job-related negative affect, meaning that job resources weaken the potential of job demands to lead to abuse.

### *Integrating the target's and the actor's perspectives of workplace aggression*

Most research in the area of workplace aggression has taken either the target's perspective or the actor's perspective. Perhaps one of the reasons for this clear differentiation is the belief that targets of aggressive behavior are different people from actors of aggressive behavior. However, this may not always be the case. Anderson and Pearson (1999), in their seminal article on incivility, introduce the concept of 'incivility spiral', according to which being the target of negative behavior at work is a triggering element for counter-aggression. Some studies on bullying (Coyne, Smith-Lee Chong, Seigne, & Randall, 2003; Lee & Brotheridge, 2006; Nielsen, Skogstad, Matthiesen, Glasø, Aasland, et al., 2008) have indeed revealed that a proportion as large as 20-25% of victims admit to having acted as bullies as well. Furthermore, studies on counterproductive work behavior (CWB; Chen & Spector, 1992; Fox et al., 2001; Storms & Spector, 1987) have found that one of the most important predictors of abuse is being the target of negative behavior from others. Finally, despite the fact that actors of aggression have been described differently in terms of personal attributes than targets of aggression (e.g. Zapf & Einarsen, 2003), recent reviews suggest that the personality characteristic which is more consistently associated to both acted (Barling et al., 2009; Berry et al., 2007) and suffered (Aquino & Thau, 2009) aggression is emotional instability/negative affectivity, which describes what has been called the 'hot temperament' type (Anderson & Pearson, 1999).

However, no study has tried to integrate these 'parallel' findings in a more complex model of workplace aggression, for example a model in which the actor's and target's perspectives are both considered and put in relation to the potentially common work-environmental and personal correlates. Thus, Chapter 6 of the thesis (Are role stressors and workaholism related to abusive behavior at work? The mediating role of workplace bullying) attempts such an overall integration and tests an expanded stressor-emotion model of abusive behavior, in which being the target of bullying is seen as a critical intervening variable. This model builds upon the previous studies included in the thesis, in that poor working conditions

and a hot temperament type, including their interaction, are seen as critical triggering factors for both bullying and abuse. A further original aspect of Chapter 6 is that hot temperament is operationalized in terms of workaholism (McMillan, O'Driscoll, & Burke, 2003), a personal vulnerability factor that is receiving increasing attention in occupational health research (Schaufeli, Taris, & Bakker, 2008), which however has not been examined in relation to aggression (either suffered or acted). Workaholism presents many of the characteristics of the hot temperament type, since workaholics are rigid and inflexible (Kanai & Wakabayashi, 2001), create difficulties for their co-workers (Porter, 2001) and, more importantly, may be characterised by definition as lacking self-regulatory capacities, which is one of the defining aspects of the hot temperament.

Thus Chapter 6 has been designed to address the following main hypotheses: that poor psychosocial working conditions (i.e. role conflict and role ambiguity) and workaholism are related to abusive behavior against co-workers and others and that being the target of bullying mediates these relationships. Furthermore, that an interaction between working conditions and workaholism has added value in understanding the path to abusive behavior at work.

Finally, Chapter 7 of the thesis presents a general discussion, including a summary of the results obtained, the main limitations of the reported studies, and the most important implications for practice.

## Chapter 2

### **Relationships between bullying at work and MMPI-2 personality profile, post-traumatic stress symptoms and suicidal ideation and behavior**

#### Abstract

This study investigates the relationships between the experience of bullying at work and personality traits and symptom patterns as assessed by means of the MMPI-2. Participants were 107 workers who had contacted mental health services because they perceived themselves as victims of bullying. In line with previous research, the results showed that the MMPI-2 mean profile was characterised by a neurotic component as evidenced by elevations of scales 1, 2, and 3, and a paranoid component as indicated by elevation of scale 6. Contrary to previous research, a pattern of positive and significant correlations was found between the frequency of exposure to bullying behaviors and the MMPI-2 clinical, supplementary and content scales, including the post-traumatic stress scale. Only about half of the participants showed a severity of post-traumatic stress symptoms indicative of a post-traumatic stress disorder. The frequency of exposure to bullying predicted suicidal ideation and behavior, with depression only partially mediating this relationship.

Keywords: bullying at work; mobbing; MMPI-2; suicidal ideation

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## Introduction

In the past ten to fifteen years, a new psychosocial risk has come to the attention of occupational health researchers and practitioners: the phenomenon of bullying, or what in some countries is called mobbing. The term ‘bullying’ denotes a work situation in which a person is subjected to harassment, social exclusion and isolation, and is negatively affected in his or her work, usually by colleagues or superiors (Leymann, 1990a, 1996). For the label ‘bullying’ to be attached to these actions, they usually have to occur frequently (on a weekly basis) and over a period of several months (Einarsen, Hoel, Zapf, & Cooper, 2003; Zapf & Einarsen, 2005).

Most research on bullying has focused on the detrimental consequences to health of the phenomenon (Einarsen & Mikkelsen, 2003; Moayed, Daraiseh, Shell, & Salem, 2006). A significant link has been established between the self-perceived frequency of exposure to bullying behaviors or to bullying according to a given definition, on the one hand, and general anxiety and depression on the other, as well as stress-related physical conditions such as cardiovascular disease (Hansen, Hogh, Persson, Karlson, Garde et al., 2006; Kivimäki, Elovainio, & Vahtera, 2000; Kivimäki, Virtanen, Vartia, Elovainio, Vahtera et al., 2003; Mikkelsen & Einarsen, 2002; Niedhammer, David, Degioanni, & 143 occupational physicians, 2006; Quine, 1999; Zapf, Knorz, & Kulla, 1996). According to Leymann and Gustafsson (1996), the typical psychiatric diagnosis for bullying victims is Post-Traumatic Stress Disorder (PTSD; APA, 2000), a disorder which usually ensues from an overwhelming traumatic event and is manifest in symptoms of re-experiencing (e.g., sudden flashbacks of the traumatic experience, painful memories, nightmares), avoidance (e.g., difficulties in remembering aspects of the trauma, progressive social withdrawal, emotional numbing), and arousal (e.g., irritable and angry behavior, concentration difficulties, being “superalert”), and which has a strong negative impact on the individual’s level of functioning. In a study carried out on 62 bullying victims, Leymann and Gustafsson (1996) found that PTSD was the correct diagnosis in 92% of cases. Leymann (1990a, 1996) has gone further by suggesting that a long-term effect of bullying may also be, in the most extreme cases, the suicide of the victim.

Subsequent research did not pay much attention to these findings. The relationship between bullying and PTSD was further investigated by only a few North European studies. Mikkelsen and Einarsen (2002) found a significant correlation ( $r = .34$ ) between self-perceived frequency of exposure to bullying behaviors and PTSD symptomatology in a group of 118 victims, with 76% of the victims exhibiting a severity of symptoms above the threshold for diagnosis of the

disorder. Similarly, Matthiesen and Einarsen (2004) found correlations varying from  $r = .35$  to  $r = .41$  between the same measure of bullying and four different scales for the hallmark symptoms of PTSD, with a 72% or 74.5% prevalence of the disorder according to the measure used. Thus, despite there is also evidence for a lower prevalence of PTSD among victims (Gilioli, 2004; Girardi, Monaco, Prestigiacomio, Talamo, Ruberto, & Tatarelli, 2007), there is a widespread belief among bullying researchers (Einarsen & Mikkelsen, 2003) that PTSD may indeed be a typical reaction to bullying.

However, potential risk factors for the development of PTSD have not been taken in due consideration in previous research. In a recent review on PTSD, Nemeroff, Bremner, Foa, Mayberg, North et al. (2006) reported that female gender appears to be the strongest predictor for the disorder. Female gender was substantially overrepresented among bullying victims in the North European studies reviewed above, with as much as 91% of the victim sample in Mikkelsen and Einarsen (2002) being women. On the contrary, there is little evidence that bullying may be more prevalent among females (Zapf, Einarsen, Hoel, & Vartia, 2003). This suggests that, on the whole, the typicality of PTSD among bullying victims may have been overestimated by previous research. Hence, one of the aims of the research reported by this paper was to further explore the relationship between bullying and PTSD.

As regards the relationship between bullying and suicide (Leymann, 1990a, 1996), to date this has not been empirically investigated. However, evidence from research on school bullying (Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, & Rantanen, 1999; Klomek, Marrocco, & Kleinman, 2007)--which may be considered as an interpersonal process similar to workplace bullying (Schuster, 1996)--shows that school bullying is a risk factor for suicidality. Thus, another aim of our research was to explore the relationship between workplace bullying and ideation of suicide.

Since the work of Leymann (1990a), researchers have devoted great effort to identifying the causes of bullying, with the focus mainly on two orders of causes: namely social-organizational factors and the victim's personality (Hoel & Salin, 2003; Moayed et al., 2006; Neuman & Baron, 2003; Zapf & Einarsen, 2003). While there is evidence (Skogstad, Einarsen, Torsheim, Aasland, & Hetland, 2007) that some job-stress inducing factors such as role conflict and ambiguity and a *laissez-faire* leadership style may play a role in the occurrence of bullying, there is still debate among researchers as for the role of victim's personality. Leymann (1990a, 1996) found no evidence that personality had a role in the victimization process. However, more

recent research (Coyne, Seigne, & Randall, 2000; Coyne, Smith-Lee Chong, Seigne, & Randall, 2003; Matthiesen & Einarsen, 2001; Smith, Singer, Hoel, & Cooper, 2003; Vartia, 1996; Zapf, 1999) has consistently found that personality characteristics are associated with being a victim of bullying; as a consequence, there is today wide consensus on the view that personality differences among victims and non-victims are more likely causes, rather than consequences, of bullying (Zapf & Einarsen, 2005).

However, most of the studies including a measure of the victim's personality have been organizational studies in which a standard and comprehensive clinical personality assessment could not be carried out. Only three studies have conducted a more robust evaluation of the victim's personality. This have been done by administering the revised version of the Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989).

The first of these studies focused on 129 American worker's compensation claimants (Gandolfo, 1995), 47 of whom reported psychological problems which were allegedly a consequence of harassment in the form of excessive criticism, threats to job or body, discriminatory practices and sexual harassment. Eighty-two subjects, who reported emotional and/or physical problems as a consequence of other causes (e.g., work overload), acted as controls. Overall, the results indicated that the harassed subjects reported a clinical profile of neurotic type characterized by a tendency to convert psychological distress into somatic symptoms, including a marked depressive symptomatology. The profile of the non-harassed subjects was very similar; but the harassed subjects reported a significantly higher, over-threshold score on the paranoia scale, indicating a clinically relevant trait of being angry, oversensitive and suspicious of others. In a more recent study by Girardi et al. (2007) on 146 individuals exposed to bullying, an MMPI-2 profile strikingly similar to that found by Gandolfo emerged. However, in both these studies the victimization experience was not given detailed description in terms of frequency and duration, thus the relationship between the personality profile and bullying could not be investigated.

In the third study in which the MMPI-2 was used, Matthiesen and Einarsen (2001) questioned 85 present and past victims of bullying and analysed their victimization experience by means of the Negative Acts Questionnaire (NAQ; Einarsen & Hoel, 2001; Einarsen & Rakness, 1997). This tool investigates the frequency of exposure to a number of bullying behaviors. The typical profile emerged in this study was almost identical to that found by Gandolfo (1995) and Girardi et al. (2007). Surprisingly, however, when the NAQ was correlated with the MMPI-2

scales, it was found that the frequency of bullying was negatively related to all the MMPI-2 scales, indicating that those who felt most targeted by negative actions were the least psychologically disturbed. These results were taken by Matthiesen and Einarsen (2001) as evidence for a vulnerability factor concerning how some bullying victims experience negative actions and cope with them.

However, the research design chosen by Matthiesen and Einarsen (2001) suffers from some methodological problems which may have influenced their results. The MMPI-2 administered at the time of the survey produced an indication of the current personality profiles of participants (Pope, Butcher, & Seelen, 2000). However, only 22% of participants were experiencing bullying at the time of the survey, with as much as 32% saying that the bullying had ceased more than five years before. Hence, especially for the latter group, the personality surveyed may have been different from the one possessed during or soon after the bullying. In other words, time might have been a crucial confound.

Thus, whilst previous research has provided initial evidence on the relationship between bullying and personality as comprehensively described, it appears that further research is required to overcome some of its limitations: namely a lack of description of work victimization in Gandolfo (1995) and Girardi et al. (2007), and the heterogeneousness of the victim sample as regards time since the bullying in Matthiesen and Einarsen (2001).

In light of these considerations, the research reported here was carried out to address the following hypotheses:

1. Bullying victims would show an MMPI-2 personality profile indicating severe psychological disorders mainly of neurotic type; more specifically, a profile characterised by a tendency to somatise psychological distress which comprised a marked depression and – as a second characterising feature – a remarkable paranoid cognition (Gandolfo, 1995; Girardi et al., 2007).

2. The MMPI-2 profile of victims would also be characterised by a clinically significant elevation on the scale assessing symptoms of PTSD. The aim in this case was to further explore the hypothesis (Leymann & Gustafsson, 1996) that PTSD is a typical reaction to bullying.

3. The experience of bullying would be associated with the current personality profile of victims. Contrary to what Matthiesen and Einarsen (2001) found, we expected that the MMPI-2 scales would be positively and significantly correlated with the frequency of exposure to bullying behaviors.

4. Following Leymann's (1990a, 1996) hypothesis that bullying victims may be at risk of suicide, we also hypothesised that (4a) the experience of bullying would be significantly associated with suicidal ideation. Furthermore, since there is longitudinal evidence (Kivimäki et al., 2003) for a relationship between bullying and incident depression, and depression is an established (APA, 2000) risk factor for suicidality, we hypothesised that (4b) the association between bullying and suicidal ideation would be mediated by depression.

## **Method**

### *Participants*

Participants were 107 individuals who had contacted three different mental health counselling services of three central Italian towns between October 2004 and June 2007. The sample was balanced by gender, with 44.9% of participants being women. Mean age was 42.7 years ( $SD = 9.2$  years). Fifty-seven percent of participants were married, 36.4% were single (never married) and 6.6% were divorced. As regards educational level, 1.9% had elementary school education, 11.2% had completed secondary school, 58.9% had a high school diploma and 28.0% a degree or post-graduate qualification. Participants came from a variety of occupational sectors: those most represented were the health sector (21.9%), local authorities or administrations (18.1%), the retail sector (6.7%), and the post-telecommunications sector (6.7%). A large majority of participants (83.0%) were in full-time employment on permanent job contracts; only a minority (15.1%) were union representatives in their workplaces. According to the definition of bullying provided with the Negative Acts Questionnaire (NAQ; see below), in the previous six months 65.1% of participants had perceived themselves as exposed to bullying on a daily basis, 18.9% several times per week, 11.3% monthly, and 4.7% occasionally. Mean duration of bullying was 41.9 months ( $Mdn = 24.0$ ,  $SD = 39.1$  months).

### *Questionnaire*

*Personality.* The personality of participants was assessed by means of the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1940) in its revised version (MMPI-2; Butcher et al., 1989). The MMPI-2 is a 567-item, true-false questionnaire developed as a diagnostic tool for psychiatric and psychological screening. Its scales investigate abnormal behaviors and the symptoms of diverse disorders and personality traits (Pope et al., 2000). The

most well-established scales of the MMPI-2 are the following 10 clinical scales: Scale 1 (Hs–Hypochondriasis); Scale 2 (D–Depression); Scale 3 (Hy–Hysteria); Scale 4 (Pd–Psychopathic deviate); Scale 5 (Mf–Masculinity-Femininity); Scale 6 (Pa–Paranoia); Scale 7 (Pt–Psychasthenia); Scale 8 (Sc–Schizophrenia); Scale 9 (Ma–Hypomania); Scale 0 (Si–Social introversion). There are also three validity scales, which are of critical value in interpreting the test: the L (Lie) scale, a measure of impression management; the F (Infrequency) scale, a measure of symptoms’ exaggeration; and the K (Subtle defensiveness) scale, a correction measure with which to take account of the tendency of certain people to deny problems. The standard MMPI-2 profile graphically represents elevations of the three validity and 10 clinical scales. Furthermore, the MMPI-2 contains the widely used 15 content scales, which investigate symptom themes and clinical problems--e.g., BIZ (Bizarre mentation), TPA (Type A behavior)--that only partially overlap with those investigated by the clinical scales and have stronger psychometric properties. In addition to the above scales, we also used the PK scale, a measure of post-traumatic stress originally developed by Keane, Malloy and Fairbank (1984; see also Lyons & Keane, 1992), and the Fb (Infrequency-back) scale, which parallels the function of the F scale but focuses especially on items appearing in the second half of the questionnaire.

For interpretation, the MMPI-2 raw scale score is linearly transformed into a standard T score (Butcher et al., 1989, for details), which constitutes the basis for the MMPI-2 evaluation: a score higher than 65 (i.e., the 92nd percentile of the normative scores distribution) indicates significant psychological problems. However, a similarly high score on the L, K or F scales may weaken the interpretability of the profile. The MMPI-2 is not only interpreted at the single scale level: clinicians have developed descriptive hypotheses for the combination – also called *codetype* – of the two or three higher clinical scales (Butcher, 1990).

The MMPI-2 has been adapted into Italian (Pancheri, Sirigatti, & Biondi, 1996) and is routinely used in clinical assessment and applications.

To assess suicidal ideation, the Suicidal Potential Scale (SPS; Glassmire, Stolberg, Green, & Bongar, 2001) has also been used. This recently derived MMPI-2, 6-item scale focuses on reported suicidal ideation and behavior. An example item is: “Lately I have thought a lot about killing myself”. Cronbach’s alpha of the scale was .65 in the analyses reported here.

*Bullying.* Bullying was assessed by means of the Negative Acts Questionnaire (NAQ; Einarsen & Hoel, 2001; Einarsen & Raknes, 1997), which consists of 22 items portraying negative behaviors usually observed in a bullying scenario, such as “You have been humiliated

or ridiculed in connection with your work”. The temporal frame of reference on which respondents are asked to focus is “the last six months”. Responses are given on a frequency scale varying from “never” (1) to “daily” (5). Cronbach’s alpha was .91. A further item in the NAQ explores the frequency of exposure to bullying according to a given definition, with the same temporal frame of reference and response categories used for the single negative behaviors described above. Bullying is defined as “a situation where one or several individuals persistently over a period of time perceive themselves to be on the receiving end of negative actions from one or several persons, in a situation where the target of bullying has difficulty in defending him or herself against these actions. We will not refer to a one-off incident as bullying”. The NAQ items were adapted into Italian by using the back translation method. A further item was then added to the NAQ: self-perceived victims were questioned about the duration of bullying in months.

### *Procedure*

Participants had contacted the three mental health services reported above to seek counselling for a distressing work situation which they identified as bullying. In most cases, participants had voluntarily contacted these services; in a number of cases they had been sent by their general practitioner or by a lawyer. A psychologist working in these services met each participant at least twice. During the first meeting a clinical interview was conducted to collect the participant’s personal and work anamneses. The second meeting consisted of a testing session during which the NAQ and the MMPI-2 were administered. Informed consent was obtained to use the data presented here.

### *Statistics*

Most of the analyses were run by means of widely known analytical tools available in SPSS. The hypothesised mediating effect of depression on the relationship between bullying and suicidal ideation was studied by means of a series of regression analysis, in line with the procedure outlined by Baron and Kenny (1986).

## **Results**

MMPI-2 protocols were first examined for a validity check. Following Pope et al. (2000) indications, these criteria were used to invalidate a protocol: a number of missing values higher than 29, an L score higher than 69, or an F or Fb score higher than 99. However, if most of the

missing values were reported after item 370, and if the L and F scales suggested a valid protocol, the clinical and PK scales were retained for analyses. After the validity check, 100 MMPI-2 protocols remained available for further analyses.

Table 1 reports the descriptive statistics for the MMPI-2 validity and clinical scales.

**Table 1.** Descriptive statistics of MMPI-2 validity and clinical scales.

Scale	<i>M</i>	<i>SD</i>	<i>Mdn</i>	Lowest	Highest
L	52.3	8.5	52.0	33.0	69.0
F	63.4	11.9	61.2	40.0	93.0
K	43.9	9.7	41.0	29.0	74.0
1–Hs	73.8	13.1	73.0	45.0	93.0
2–D	70.7	11.4	70.0	45.0	93.0
3–Hy	70.0	13.9	69.0	42.0	105.0
4–Pd	63.1	10.3	61.0	38.0	94.0
5–Mf	51.5	8.5	51.0	30.0	72.0
6–Pa	68.7	11.0	69.0	34.0	88.0
7–Pt	63.6	11.4	63.0	38.0	84.0
8–Sc	63.7	10.2	64.0	40.0	84.0
9–Ma	55.1	11.4	55.0	36.0	92.0
0–Si	58.0	11.4	56.5	22.0	85.0

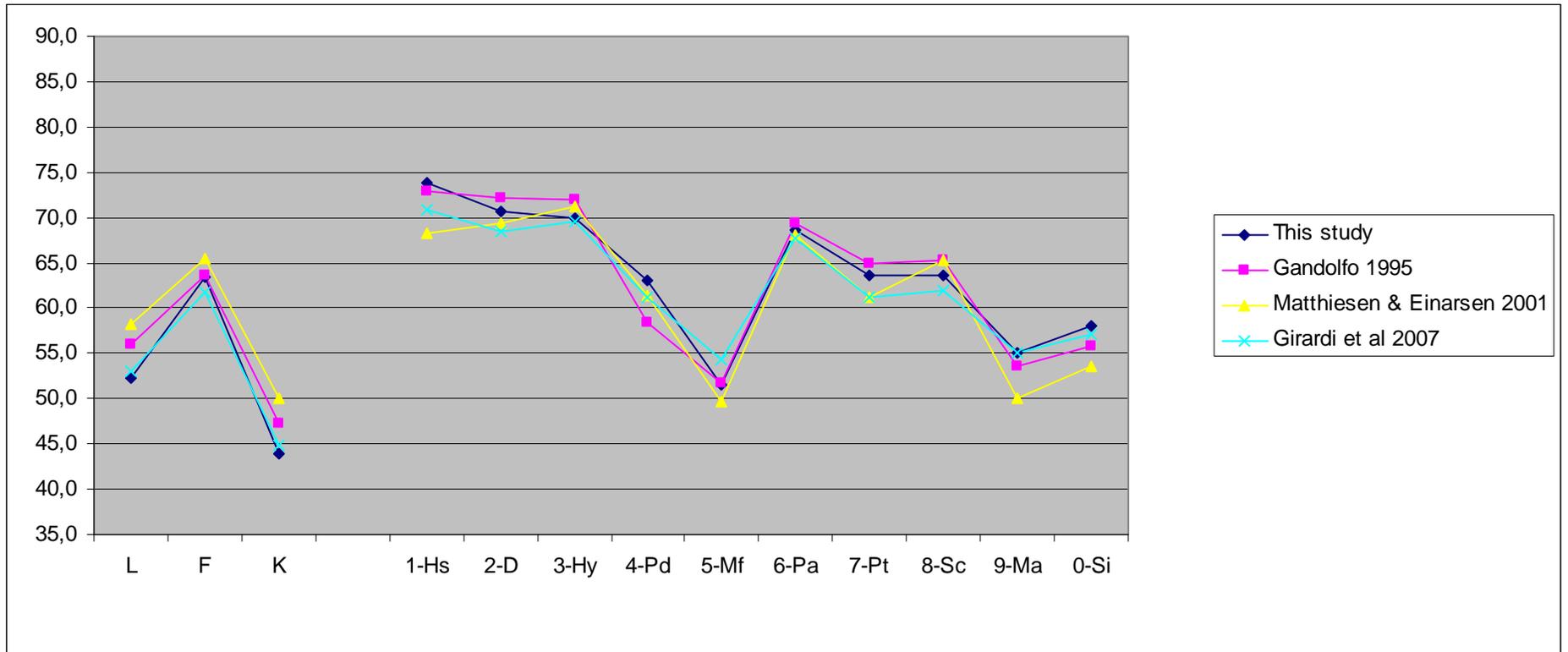
Above-threshold mean scores ( $T > 65$ ) emerged on four of the ten clinical scales: Scale 1 (Hs), Scale 2 (D), Scale 3 (Hy) and Scale 6 (Pa), indicating that participants were experiencing severe psychological disorders. The combination of high scores on scales 1, 2 and 3 suggested that participants might be characterized by a tendency to convert psychological distress into somatic symptoms (Butcher, 1990). The elevation on Scale 6 suggested also a pronounced paranoid ideation. Further descriptive analyses highlighted that 47.7% of participants had a profile with simultaneous elevations on scales 1, 2, 3 and 6. However, in most cases, these elevations were accompanied by at least one other elevation on the remaining scales, most frequently – in 31.0% of cases – on Scale 8 (Sc), meaning that psychotic symptoms were also prevalent. In line with the personality characteristics described above, the most common two-

point codetypes were 1-3 or 3-1 (21.0% of the cases), followed by 1-2 or 2-1 (12.0%) and 1-6 or 6-1 (10.0%). In only 8.0% of cases was the MMPI-2 profile entirely within normal range. This latter group of participants reported a statistically significantly lower frequency of exposure to bullying behaviors as indicated by the NAQ total score,  $t(91) = 2.33, p < .05$ .

Inspection of the MMPI-2 mean profile separately for men and women revealed that they reported the same configuration, with scales 1, 2, 3, and 6 as the most elevated ones. However, men appeared to report a more severe profile than women. This was confirmed by a multivariate analysis of variance (MANOVA),  $F(9, 90) = 2.19, p < .05$  (scale 5, Mf, was excluded from this analysis since it is a gender specific scale). The following Bonferroni corrected univariate  $F$  tests showed that men reported a more elevated score on Scale 2 (D),  $F(1, 98) = 4.38, p < .05$ ; on Scale 6 (Pa),  $F(1, 98) = 4.76, p < .05$ ; and on Scale 0 (Si),  $F(1, 98) = 3.97, p < .05$ . These results indicated that, with respect to women, men were more depressed (T scores: 72.7 vs. 68.0), paranoid (70.8 vs. 66.0), and socially introverted (59.9 vs. 55.4). By contrast, men did not report a more severe victimization as measured by the NAQ total score. As shown by Figure 1, the mean clinical profile that emerged was strikingly similar to that found by previous research (e.g., Gandolfo, 1995).

Analysis of the MMPI-2 supplementary scales revealed that the mean T score for the PK scale was slightly above threshold ( $M = 66.0, SD = 12.8$ ), with 52.0% of participants reporting a severity of symptoms indicative of a Post-Traumatic Stress Disorder (PTSD).

Table 2 reports the correlations between the MMPI-2 validity and clinical scales and the variables describing the bullying experience: NAQ total score, frequency of exposure to the phenomenon according to the given definition, and the duration of bullying. The correlations between the MMPI-2 clinical scales and the NAQ were all positive. The NAQ was statistically significantly correlated with the MMPI-2 scale F,  $r = .29, p < .01$ ; Scale 2 (D),  $r = .26, p < .05$ ; Scale 4 (Pd),  $r = .28, p < .01$ ; and Scale 8 (Sc),  $r = .28, p < .05$ . These correlations indicated that the higher the reported frequency of exposure to bullying behaviors, the larger the number of overall symptoms (scale F), depressive symptoms (Scale 2), schizophrenic symptoms (Scale 8), and the stronger the social maladjustment, impulsiveness and aggressiveness (Scale 4) experienced by the participant.



**Figure 1.** MMPI-2 validity and clinical profiles of bullying victims in four studies.

**Table 2.** Correlations between bullying variables and MMPI-2 validity and clinical scales.

	L	F	K	1-Hs	2-D	3-Hy	4-Pd	5-Mf	6-Pa	7-Pt	8-Sc	9-Ma	0-Si
NAQ total score	-.16	.29**	-.12	.19	.26*	.19	.28**	.10	.18	.20	.26*	.12	.09
Frequency of exposure to bullying (according to definition)	-.07	.15	-.10	-.02	.12	.01	.06	.18	.11	.12	.03	-.05	-.06
Duration of bullying (in months)	.01	.20*	.03	.13	.19	.15	.18	-.10	.09	.02	.13	-.12	.01

\*  $p < .05$ , \*\*  $p < .01$ .

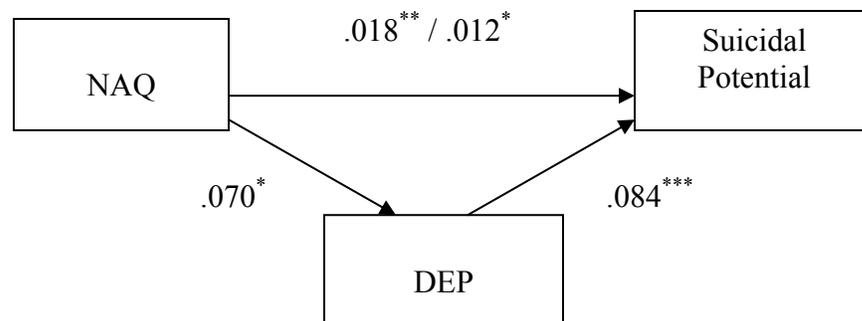
**Table 3.** Correlations between bullying variables and MMPI-2 content scales.

	ANX	FRS	OBS	DEP	HEA	BIZ	ANG	CYN	ASP	TPA	LSE	SOD	FAM	WRK	TRT
NAQ total score	.23*	.18	.04	.23*	.19	.13	.25*	.09	.20	.11	.25*	.02	.27*	.24*	.15
Frequency of exposure to bullying (according to definition)	.10	.03	.04	.09	-.00	.06	.10	-.04	.05	.01	.09	-.07	.05	.14	.11
Duration of bullying (in months)	-.01	-.07	-.06	.17	.15	-.10	.03	-.04	.04	-.11	.10	.03	.15	.04	.12

\*  $p < .05$ . Note. ANX = Anxiety; FRS = Fears; OBS = Obsessiveness; DEP = Depression; HEA = Health concerns; BIZ = Bizarre mentation; ANG = Anger; CYN = Cynicism; ASP = Antisocial practices; TPA = Type A behavior; LSE = Low self-esteem; SOD = Social discomfort; FAM = Family problems; WRK = Work interference; TRT = Negative treatment indicators.

As shown by Table 3, a pattern of positive correlations also emerged between the NAQ and the MMPI-2 content scales. The correlations between the NAQ and the PK scale and the Suicidal Potential Scale (not reported in tables) were, respectively,  $r = .22, p < .05$ , and  $r = .30, p < .01$ .

A series of regressions were then run to test for the hypothesised mediating effect of depression on the relationship between bullying and suicidal ideation. The depression measure used in these analyses was the content scale DEP (Depression), since MMPI-2 content scales generally show higher items' homogeneity and reliability in comparison to the clinical scales. However, the DEP scale was reduced by the three items that it shares with the Suicidal Potential Scale. This reduced, 30-item version of the DEP scale had a Cronbach's alpha of .87. A first regression analysis (mediator on independent variable) revealed a statistically significant effect of frequency of exposure to negative behaviors as measured by the NAQ on depression,  $\beta = .24, t = 2.32, p < .05$ . A second regression analysis (dependent variable on independent variable) indicated that exposure to negative behaviors was also a statistically significant predictor of suicidal ideation and behavior,  $\beta = .30, t = 2.91, p < .01$ . Finally, a multiple regression analysis (dependent variable on both independent variable and mediator) revealed that both exposure to negative behaviors and depression were statistically significant predictors of suicidal ideation and behavior, showing--respectively--the following effects:  $\beta = .20, t = 2.08, p < .05$ , and  $\beta = .40, t = 4.16, p < .01$ . The mediation path (Figure 2) emerged as statistically significant at the Sobel test,  $z = 2.04, p = .04$ ; however, these results support a partial, rather than a full, mediation effect of depression.



Note. Unstandardized regression coefficients are reported in paths. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

**Figure 2.** Depression as a mediator of the relationship between frequency of exposure to negative behaviors and suicidal ideation and behaviors.

## Discussion

The present study has explored a number of hypotheses concerning the personality of bullying victims and the relationships between personality dimensions and the characteristics of the bullying experience.

Following previous research (Gandolfo, 1995; Girardi et al., 2007), it was hypothesised that bullying victims would exhibit a typical MMPI-2 profile indicating an abnormal personality, with a tendency toward the somatization of psychological distress, as well as a notable paranoid cognition. The results supported this prediction. The typical personality profile emerged here substantially overlapped with that previously found, with a clear 1-2-3 codes combination and an equally prominent elevation of Scale 6. This supported the view that bullying victims are individuals with a psychological functioning mainly of neurotic type. Individuals with elevations on scales 1, 2, and 3 (the neurotic triad) tend to manifest, especially when under stress, a poor ability to directly address the causes of their problems and are prone to implement dysfunctional defensive mechanisms such as somatization, denial and repression (Butcher, 1990). Furthermore, the elevation of Scale 6 indicated a tendency to be suspicious of others.

This recurrent MMPI-2 personality pattern among bullying victims, with a neurotic component and a paranoid component as the characterising ones, makes its use as a standard against which to compare the profile of individuals who claim to be bullying victim a concrete possibility. The availability of specific base rates for a particular problem situation, especially if this has legal implications--which is the case of bullying--is considered of great importance by MMPI-2 diagnosticians (Pope et al., 2000). By using the MMPI-2 normative data and the base rates for the specific problem situation, one can not only determine whether the assessed individual reports an abnormal personality in comparison to that of the normative sample, but also whether the reported abnormalities are typical for individuals in the same problem situation. This may considerably help practitioners working in this area to avoid misdiagnosis (Leymann, 1996). From a research perspective, however, further considerations regarding the possible reasons for this personality pattern are necessary.

In this respect, Gandolfo (1995) found that harassed workers differed from a control group of workers with psychological problems due to other causes only for the paranoid ideation, which scored approximately eight T points higher. MMPI-2 studies of individuals in other problem situations such as sexual harassment (Lees-Haley, 1997; Long, Rouse, Nelsen, & Butcher, 2004) found a typical profile with a clear neurotic component as indicated by elevations

of scales 1, 2, and 3, but not with a contemporaneous paranoid component. Thus, the significant paranoid component may be a rather specific feature of the bullying victim personality, which points to the possibility that, if pre-existing, this trait may fuel the polarization of interpersonal conflict at work, which in turn may determine the neurotic reaction. Single case studies in line with this interpretation have already been reported (Jarreta, Garcia-Campayo, Gascon, & Bolea, 2004).

While this is an interesting hypothesis, one cannot rule out that the paranoid trait is a consequence of the bullying. This explanation was strongly advocated by Leymann (e.g., 1996). In support of this interpretation, Kramer (1994) has found that interpersonal relationships in which individuals' expectations of trust are chronically violated, predispose them to develop a sinister attributional bias or paranoid cognition. In the case of bullying, it may also be hypothesised that this cognitive state is to a certain extent functional, since it induces the victim to carefully evaluate others' behavior and to avoid committing errors and revealing information to colleagues which may prove useful to the bully. Thus, from this point of view, bullying may be a typical situation in which a paranoid cognition develops, since the costs of failing to detect negative intentions in others' behavior (false negatives) are higher than the costs of attributing such intentions where there are none (false positives; Haselton & Nettle, 2006). If this is true, one would expect to see a drastic fall in the paranoid cognition, as well as in the neurotic component, with an attenuation of the work conflict. However, longitudinal studies are needed to empirically evaluate this expectation.

Another interesting result of this study, which has also emerged in Girardi et al. (2007), is the more compromised personality pattern reported by men even though no differences were found between the genders in the severity of the victimization. Research has found that women are more likely than men to use medical services, including mental health services, both in general (Green & Pope, 1999) and in relation to workplace harassment (Rospenda, 2002; Rospenda et al., 2006). According to some (Green & Pope, 1999), this may be due to women's greater attention to symptoms, which may enhance their knowledge about appropriate responses to them. It may thus be hypothesised that the more compromised MMPI-2 profile shown by men in this study is due to the fact that women seek treatment for their symptoms more promptly, while men wait until the level of psychological impairment reaches more extreme values. In this case, there are interesting implications for the development of more sophisticated preventive

measures against bullying at work, such as the opportuneness of specifically targeting the resistance of men to seeking help.

As a second hypothesis, it was also predicted that victims of bullying would show severe symptoms of traumatic stress indicative of a Post-Traumatic Stress Disorder (PTSD). This hypothesis was explored by looking at the elevation of the MMPI-2 PK scale (Keane et al., 1984). The results did not fully support the hypothesis, however. Although it emerged that PTSD symptoms are widespread among victims, the mean elevation of the PK scale was only slightly above threshold, with about half of the participants showing a severity of symptoms indicative of a PTSD. These results differ from those of previous studies (Leymann & Gustaffson, 1996; Matthiesen & Einarsen, 2004; Mikkelsen & Einarsen, 2002), in which the prevalence of PTSD varied from 72 to 76% with self-report scales, to 92% with a full differential diagnosis. However, in previous studies bullying victims consisted mostly of women, and female gender is the most important predictor for the occurrence of PTSD (Nemeroff et al., 2006). This may have determined the high prevalence of the disorder and led to overestimation of its importance for bullying victims.

Thus, the results of the present study does not support the view (Leymann & Gustaffson, 1996; Mikkelsen & Einarsen, 2002) that PTSD is a typical reaction to bullying. In 48.0% of the cases PTSD symptoms were sub-threshold, which at the diagnostic level may be captured by the DSM category of Adjustment Disorder (Gilioli, 2004; Girardi et al., 2007). Comparatively, depression seems to be much more typical (65% of victims reported significant depressive symptoms). However, since according to some (e.g., Foa, Cashman, Jaycox, & Perry, 1997) the Kean et al. (1984) PK scale may not be a sound tool for the screening of PTSD, perhaps further research on the relationship between bullying and PTSD is worth doing in the future.

The third prediction made in this study has concerned the positive and significant relationships between the characteristics of the bullying experience and MMPI-2 scale elevations. Contrary to Matthiesen and Einarsen (2001), who found a pattern of negative correlations between the reported frequency of exposure to bullying behaviors and the MMPI-2 clinical and content scales, in the present study the same correlations have all been positive. Although we expected generally stronger correlations between the NAQ and the MMPI-2 clinical scales--particularly Scale 1 (Hs--Hypochondriasis), Scale 3 (Hy--Hysteria), and Scale 6 (Pa--Paranoia)--the widely-known heterogeneousness of the MMPI-2 clinical scales may have played a role. We also explored this issue (not reported in the Results) by computing the Harris and

Lingoes (1955) subscales of the most elevated clinical scales (2, 3, and 6). These subscales investigate more homogeneous psychopathological domains and should be used (Butcher et al., 1989) to interpret the elevation of the parent clinical scale. We found that subscales D1 (Subjective Depression); D4 (Mental Dullness); Hy3 (Lassitude-Malaise); and Pa1 (Persecutory Ideas) were all positively and significantly correlated with the NAQ, with a magnitude of  $r$  varying from .21 to .31.

Thus, on the whole, this pattern of results supports our third prediction and is at odds with the hypothesis of the personal vulnerability of bullying victims as put forward by Matthiesen and Einarsen (2001) to explain the negative correlations found between the NAQ and the MMPI-2 scales. Of course, the vulnerability hypothesis is not ruled out by the correlations found in this study, which basically indicate that only a small amount of variability in personality among victims is associated with the frequency of the bullying experience. These correlations, however, should not be underestimated. If one considers that the MMPI-2 taps inner personality characteristics which are in the domain of clinical relevance and have been found to be strongly stable over time (Butcher, 1990), even such kinds of correlations are of interest from a theoretical point of view. These results confirm the positive association between bullying and abnormal personality as previously found (e.g., Coyne et al., 2000, 2003), and they do so for the first time by using a gold standard comprehensive personality assessment system.

Turning to Hypothesis 4a, we found a significant relationship between exposure to bullying behaviors and depressive-suicidal ideation and behavior. We also found, in line with Hypothesis 4b, that this relationship is partially mediated by depression.

Overall, the latter results support Leymann's (1996) contention that bullying victims are at risk of suicide and are cause of great concern. Closer inspection of the data revealed that 7 participants (7.0%) reported that they had already attempted suicide. This suggests that practitioners working with bullying victims should always assess suicidal ideation and behavior.

Finally, at least two important limitations of the present study should be acknowledged. First, the cross-sectional nature of the study precludes any causal conclusion on the association between bullying and personality. Better understanding of this association would be yielded by longitudinal studies, which to date have been almost absent in this area of research.

Another limitation of the present study is that the participants were bullying victims who had contacted mental health services. These victims may be those suffering the strongest distress, but they may not be representative of all bullying victims. Although this is possible, it has also

been noted that, given the severity of a bullying process, it is unlikely that a victim will not show any psychological reactions in the midst of the victimization (Zapf & Einarsen, 2005). Thus, when a conflict develops into bullying, with the victimization occurring on a weekly or daily basis, the personality reaction pattern found here may indeed be the typical one.

## Chapter 3

### **Assessing the bullying risk in organizations: Contribution to the Italian validation of the Short Negative Acts Questionnaire (S-NAQ)**

#### Abstract

In the present study an evaluation of the psychometric properties of the Short Negative Acts Questionnaire (S-NAQ) was carried out by using data concerning an organizational sample (n. 692) and a clinical sample (n. = 180). Confirmatory factor analyses of the S-NAQ indicated that a three-factor structure (Work-related bullying, Personal bullying and Social isolation) is superior in terms of fit to a one-factor structure. The latter, however, also shows an adequate fit. The S-NAQ and its component scales report significant correlations in the expected direction with role conflict, social climate at work, stress symptoms and the diagnosis of stress-related psychophysical conditions. The magnitude of these correlations is in the range of those observed for the original version of the scale with the same variables. On the whole there is evidence for satisfying psychometric properties for the Italian version of the S-NAQ.

*Keywords:* workplace bullying; mobbing; Short Negative Acts Questionnaire (S-NAQ); psychometric properties

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## Introduction

The profound changes that have taken place in recent years in the world of work, among them the globalization of the economy and the exacerbation of competition among companies, the precarization of work, the diffusion of technologies which have intensified and multiplied information flows, and demographic changes in the labour force (more women, workforce ageing, and a larger immigrant component) have led to the onset of new risks for workplace health and safety (Näswall, Hellgren & Sverke, 2008). Among these risks are the pressures due to response times dramatically reduced with respect to the past, the increase in time devoted to work, the existence for a large number of workers of increasingly porous boundaries between the work and non-work spheres, with the consequent greater difficulty of reconciling them, and the need to deal with diversity and uncertainty (Kompier, 2006; Landsbergis, 2003). Although the long-term effects of such situations are still little understood, it seems clear that they are exerted through work-related stress, which if excessively severe or chronic may cause major psychophysical dysfunctions (Karasek, 2006; Siegrist & Theorell, 2006). It is no coincidence that the new consolidated text of the Italian law on workplace health and safety (Legislative Decree n. 81 of 9 April 2008) has introduced the compulsory assessment of organizational risks which may cause work-related stress.

One emerging risk is the phenomenon of ‘bullying’ or mobbing at work (European Agency for Safety and Health at Work, 2007), which in recent years has attracted considerable attention, both scientific and political-social. The term ‘bullying’ denotes the psychological harassment of a person in the workplace due to hostile behavior, usually by a superior or a small group of colleagues or, in rare cases, subordinates (Einarsen, Hoel, Zapf & Cooper, 2003; Leymann, 1990a; Zapf & Einarsen, 2005). Examples of such behavior are the withholding of information necessary to perform one’s duties, the removal of tasks or areas of responsibility or their replacement with banal or unpleasant duties, humiliation or ridicule in front of others, the spreading of gossip and baseless rumours, excessive monitoring intended to induce errors. Such actions configure a scenario of bullying if they occur frequently and for a prolonged period of time (e.g several months) so that the victim progressively loses his or her capacity to cope with the situation and develops a severe stress reaction, anxiety and depression, and in extreme cases even disorders of psychotic type (Einarsen & Mikkelsen, 2003; Gilioli, 2004). Although the presence of a stress reaction in the victim is not an integral part of the definition of bullying, it is argued that one can only speak of bullying when hostile actions with the above characteristics

produce such a reaction (Zapf & Einarsen, 2005), and this because stress is considered an indicator of the worker's loss of capacity to manage the situation. The intentionality of the hostile actions is not regarded an essential element of bullying (Zapf & Einarsen, 2005).

The need to evaluate the phenomenon of bullying is currently present in both clinical and organizational contexts. In a clinical setting the assessment is made, as a rule, by means of interviews and the administration of psychodiagnostic tools, the aim being to determine the victim's psychophysical state and to reconstruct the causal link between the harassment suffered and the damage reported (Gilioli, Adinolfi, Bagaglio, Boccaletti, Cassitto et al., 2001). To be noted is that in Italy bullying, which is also denoted with the expression 'organizational constraint', is recognized as possible cause of work-related illness (Ministero del Lavoro e della Previdenza Sociale, D.M. 14 January 2008). In organizations, assessment is made by means of self-report questionnaires which investigate exposure to the specific hostile actions characteristic of the phenomenon (Cowie, Naylor, Rivers, Smith & Pereira, 2002). In this case, the aim is to estimate the extent of the bullying risk and to identify possible organizational antecedents so that – as required by the above-mentioned consolidated law – preventive action can be taken to eliminate the risk at source.

However, most research and interventions on bullying have used self-report questionnaires which investigate exposure to hostile behavior. Various questionnaires have been developed for this purpose. The Leymann Inventory of Psychological Terror (LIPT; Leymann, 1990b – Ege, 1998, for the Italian adaptation), consisting of 45 items in the original version, was the first tool which proposed a psychometric definition of the construct 'bullying'. Other tools proposed subsequently have been the Work Harassment Scale (WHS; Björkvist, Österman & Hjelt-Bäck, 1994 – Di Fabio, Giannini, Bracali, Mugnai & Björkvist, 2004, for the Italian version), consisting of 24 items and used to investigate the phenomenon in university workers, and, specifically developed in Italy, the Clinica del Lavoro 2.0 questionnaire (CDL 2.0; Gilioli, Cassitto, Campanini, Punzi, Consonni et al., 2005), comprising 39 items which investigate bullying behaviors, and the Questionario di Autopercezione di Mobbing (QAM 1.6; Argentero & Bonfiglio, 2008), which is instead composed of 54 items, of which 24 specifically investigate exposure to bullying, while the remainder evaluate the presence and extent of the associated stress reactions.

However, the tool most widely used internationally is the Negative Acts Questionnaire (NAQ; Einarsen & Hoel, 2001; Einarsen & Raknes, 1997), currently in its revised version (NAQ-

R; Einarsen & Hoel, 2006) consisting of 22 items that investigate different forms of bullying. The NAQ has been used in studies conducted in numerous countries, among them Austria (Niedl, 1995), Australia (O'Farrell, 2006), Belgium (Notelaers, Einarsen, De Witte & Vermunt, 2006), China (McCormack & Casimir, 2006), Finland (Salin, 2001), United States, (Lutgen-Sandvik, Tracy & Alberts, 2004) Spain (Jiménez, Muñoz, Gamarra & Herrer, 2007), and Italy (Giorgi, Matthiesen & Einarsen, 2006). Research on the psychometric properties of the tool has generally reported the reliability and validity of the NAQ (Einarsen & Hoel, 2001): its internal consistency measured with Cronbach's alpha has usually been higher than .85, and significant correlations have also emerged between the NAQ and measures of work satisfaction ( $r = -.24$  to  $-.44$ ), health and psychological well-being ( $r = -.31$  to  $-.52$ ) and psychosomatic symptomatology ( $r = .32$ ). As regards the factorial structure of the NAQ, the available evidence (Einarsen & Hoel, 2001, 2006) seems to converge on a two-factor structure, with a dimension regarding hostile actions towards the person (Personal bullying: e.g. "Spreading of gossip and rumours about you"), and a dimension relative to hostile behavior directed at the person's work (Work-related bullying: e.g. "Someone withholding information which affects your performance"). Nevertheless a structure with three factors has also been reported (Einarsen & Raknes, 1997), in which besides the two above dimensions there is a third one with sufficient interpretability and which regards social isolation. In the sole study on the psychometric properties of the NAQ available in Italy (Giorgi et al., 2006), the results seem to confirm a structure with two dimensions (Personal bullying and Work-related bullying), although on a version of the tool consisting of 17 items.

With the aim of refining the NAQ and making it more flexible so as to facilitate international comparisons on the prevalence and incidence of bullying, Notelaers and Einarsen (2008) have recently introduced a brief version of the tool consisting of 9 items, a version derived from the NAQ-R and called the Short Negative Acts Questionnaire (S-NAQ). The analyses conducted suggest that the performance of the S-NAQ is comparable to that of the original scale, and that a factorial structure with three factors fits better the data than a one-dimensional structure. Two of the three factors are the 'traditional' personal bullying and work-related bullying, while the third factor concerns hostile actions aimed at provoking social isolation. This brief version of the tool is an important step forward, given that it is increasingly necessary to have valid and reliable tools available, but ones which are concise and simple to administer, considering that in terms of scientific research and practical applications (e.g. in the

case of risk assessment in organizations) the use of a multiplicity of constructs is unavoidable, and it is crucial that these be measured appropriately and parsimoniously.

The main purpose of this study is to contribute to the validation of the Italian version of the NAQ, with the focus on the brief version of the tool. Hence, first evaluated will be the factorial validity of the S-NAQ. In order to test the tool's measurement invariance in different contexts, analysis will be conducted on both an organizational sample and a clinical sample, the latter consisting of patients who have received treatment at two public health-care facilities for bullying-related problems. Then evaluated will be the internal consistency of the S-NAQ and the possible component scales. Subsequently analysed will be the nomological network of the S-NAQ, i.e. the associations with variables that research has shown to be important correlates of bullying. To this end, examination will be made of role conflict and the social climate at work as regards the organizational variables, while job-related affective well-being, the intensity of stress symptomatology, and the diagnosis of potentially stress-related pathologies will be investigated as regards individual variables. The aim of these analyses is to evaluate the performance of the S-NAQ compared with that of the NAQ-R within a network of relations of this kind. Finally explored will be possible differences in the S-NAQ score on the basis of the main demographic dimensions, namely gender and age.

The main hypotheses tested are the following:

1. That a three-factor structure (Personal bullying, Work-related bullying and Social isolation), as in Notelaers and Einarsen (2008), is better suited to the S-NAQ data than a one-factor structure;
2. That this structure is invariant in the clinical sample, indicating that the way in which bullying is conceptualized is the same in a different measurement setting, at least at the level of factorial configuration (e.g. Cheung, 2008).
3. That the S-NAQ significantly and positively correlates with role conflict, with the social climate of the workplace (evaluated in terms of tension and competitiveness), with the stress symptomatology reported, and with the diagnosis of potentially stress-related psychophysical conditions, but negatively with job-related affective well-being.
4. That the level of the correlations between the S-NAQ and the criterion variables remains within the range recorded with the same variables by the NAQ-R.

## Method

### *Participants*

The data were collected in an organizational setting and a clinical setting. The organizational data derived from an assessment of psychosocial risks conducted in 2007 in a public-sector organization in central Italy. During a training course on emerging risks to health and safety at work – for workers in non-managerial posts – the participants were asked to compile an anonymous questionnaire which investigated in structured manner their perceptions of working conditions and their own psychophysical health. The questionnaire also included the tools used in the present study. A total of 818 workers participated in the survey (response rate: 58.8%). Exclusion of cases with missing data on the S-NAQ items left data concerning 692 participants, of whom 49.8% were women. Age was distributed as follows: 0.6% of respondents aged between 20 and 29 years old; 22.4% between 30 and 39; 43.4% between 40 and 49; 33.6% aged over 50. The clinical data, which in this study are limited to the S-NAQ, were collected between 2005 and 2007 during the routine psychodiagnostic surveys carried out by the Centro di Osservazione sul Disagio Lavorativo of the Azienda Sanitaria Locale (local health board) of Pescara and by the Centro di Salute Mentale of the Zona Territoriale 7 (local health board) of Ancona. The data concerned 208 workers (response rate not determinable), of whom 180 with complete data on the S-NAQ items; 46.1% were women; the average age was 43.5 years old (SD = 9.5 years).

### *Tools*

*Bullying* was evaluated in both samples with the NAQ-R. The tool consisted of 22 questions investigating an equivalent number of bullying behaviors (examples have already been given above), for each of which the answers were given on a 5-point scale ranging from ‘Never’ (1) to ‘Every day’ (5). A Cronbach’s alpha equal to .90 was obtained in the organizational sample, and to .91 in the clinical sample. The NAQ-R was adapted to the Italian language, using the back-translation method, by a private language services agency; with final verification by the first author (C. B.) that there were no major discrepancies between the original English version of the scale and the back-translated version.

The tools now described were used only on the organizational sample.

*Role conflict* – i.e. the extent to which a worker is exposed to incompatible requirements and expectations – were investigated by 6 questions drawn from Rizzo, House and Lirtzman

(1970; see also Kelloway & Barling, 1990), such as: “I do things which are accepted by one person but not by others”. Answers were given on a 5-point scale from ‘Entirely true’ (1) to ‘Entirely false’ (5). The items were recoded so that the highest scores corresponded to a higher level of role conflict. A Cronbach’s alpha of .76 was obtained.

The *social climate* in the workplace was investigated by 5 questions, of which 3 were drawn from Vartia (1996) and 2 were developed specifically for the study. One example of the questions used is: “There’s envy in my workplace”. The answers were given on a 5-point scale ranging from ‘Strongly disagree’ (1) to ‘Strongly agree’ (5). Principal components analysis of the questions showed the presence of a single factor explaining 57.93% of the common variance; Cronbach’s alpha was .82.

*Affective well-being at work* was investigated using the Job-related Affective Well-being Scale (JAWS; Van Katwyk, Fox, Spector & Kelloway, 2000) in a version of the scale reduced to 12 items (Schaufeli & van Rhenen, 2006). This scale investigates the frequency with which, in the last month, positive affective states (e.g. satisfaction) and negative ones (e.g. anger) have been experienced in relation to any aspect of the respondent’s job (e.g. the tasks assigned, colleagues, a superior). The answers are given on a 5-point scale ranging from ‘Never’ (1) to ‘Very often’ (5). The scores on the six items investigating negative affective states were recoded so as to obtain a higher total score corresponding to greater affective well-being. Cronbach’s alpha was .88.

*Generic symptoms of stress* were investigated with the General Health Questionnaire (GHQ; Goldberg, 1970), an instrument widely used in Italy in both clinical and organizational settings (Fraccaroli & Schadee, 1993; Piccinelli, Risoffi, Bon, Cunico & Tansella, 1993). The tool consists of 12 questions, for instance: “Have you lost much sleep over worry?”, with a 4-point response scale ranging from ‘No’ (0) to ‘Much more than usual’ (3) for 6 questions, and from ‘More than usual’ (0) to ‘Much less than usual’ (3) for the rest, according to the meaning of the question. Although the GHQ foresees the possibility of using a threshold and classifying subjects in terms of significant versus non-significant stress, in this study a continuous score was used for the scale. Cronbach’s alpha was 0.88.

The presence of *medical diagnoses of potentially stress-related pathologies* was investigated with the following question: “Has a doctor diagnosed any of the following illnesses?”, followed by a list of pathologies, several of which, however, recorded a very low prevalence of between 0% and 1%. The attention therefore concentrated on the following:

anxiety disorder (for which the following examples were provided: panic disorder, social phobia, obsessive compulsive disorder, acute stress disorder, post-traumatic stress disorder), gastritis, colitis/irritable bowel, and depression. The answer required for each pathology was dichotomous: No (0) versus Yes (1).

### *Data analysis*

Most analyses have been conducted by using widely known analytical tools as implemented by the software SPSS 15.0. However, the factor structure of the S-NAQ has been investigated by using a series of confirmatory factor analyses (CFA). Following Notelaers and Einarsen (2008), the fit of a one-factor structure of the S-NAQ has been compared with the fit of a three-factor (Personal bullying, Work-related bullying, and Social isolation) structure. Analyses have been conducted in both the organizational sample and the clinical sample. CFA were run by using the software LISREL 8.71 (Jöreskog & Sörbom, 1996). Results were evaluated by using the chi-square ( $\chi^2$ ) statistic and the following more practical fit indices (see, for a discussion on fit indices, Hu & Bentler, 1999; Tabachnick & Fidell, 2007): the goodness of fit index (GFI) and its adjusted version (AGFI), the root mean square error of approximation (RMSEA), the normed fit index (NFI), the non-normed fit index (NNFI) and the comparative fit index (CFI). Models with values of up to .08 at the RMSEA and values of .90 or higher at the remaining indices are considered as having an acceptable fit. Models showing values of up to .06 at the RMSEA and values of .95 or higher at the NFI, NNFI and CFI are considered as having a good fit (Hu & Bentler, 1999).

## **Results**

### *Descriptive analyses*

The descriptive statistics on the items comprising the S-NAQ in the organizational sample are set out in Table 1. The Italian version of the S-NAQ is reported in Appendix.

**Table 1.** Descriptive statistics of S-NAQ items (organizational sample; n. = 692).

	<i>M (SD)</i>	Min-Max	Skew ( <i>ES</i> )	Kurtosis ( <i>ES</i> )
1. Someone withholding information which affects your performance (W1)	1.81 (0.99)	1-5	1.59 (.89)	2.49 (.18)
2. Spreading of gossip and rumours about you (P1)	1.57 (0.93)	1-5	2.19 (.90)	5.05 (.18)
3. Being ignored, excluded or being 'sent to Coventry' (SI1)	1.55 (0.96)	1-5	2.24 (.88)	4.97 (.18)
4. Having insulting or offensive remarks made about your person (i.e. habits), your attitudes or your private life (P2)	1.38 (0.80)	1-5	2.88 (.88)	9.18 (.18)
5. Being shouted at or being the target of spontaneous anger (or rage) (P3)	1.49 (0.73)	1-5	1.91 (.88)	4.93 (.18)
6. Repeated reminders of your errors or mistakes (W2)	1.41 (0.76)	1-5	2.58 (.88)	7.97 (.18)
7. Being ignored or facing a hostile reaction when you approach (SI2)	1.45 (0.77)	1-5	2.37 (.88)	6.93 (.18)
8. Persistent criticism of your work and effort (W3)	1.33 (0.72)	1-5	2.89 (.88)	9.69 (.18)
9. Practical jokes carried out by people you don't get on with (SI3)	1.08 (0.35)	1-5	6.03 (.87)	49.50 (.17)

*Note.* W = *Work-related bullying*; P = *Personal bullying*; SI = *Social Isolation*. S-NAQ/NAQ-R items' correspondence: 1/1; 2/5; 3/6; 4/7; 5/8; 6/11; 7/12; 8/13; 9/15. See Appendix (p. 50) for the Italian version of the scale.

In general, the results show that the participants had experienced all the behaviors investigated by the scale, although with an average frequency positioned between the response formalities ‘Never’ (1) and ‘From time to time’ (2); in other words, a rare frequency on average. The item with the highest frequency is item 1: “Someone withholding information which affects your performance”, while that with the lowest average frequency is item 9: “Practical jokes carried out by people you don’t get on with”. As indicated by the skewness and kurtosis statistics in Table 1, all the items in the questionnaire show a distribution which differs significantly from the normal one.

### *Confirmatory factor analyses*

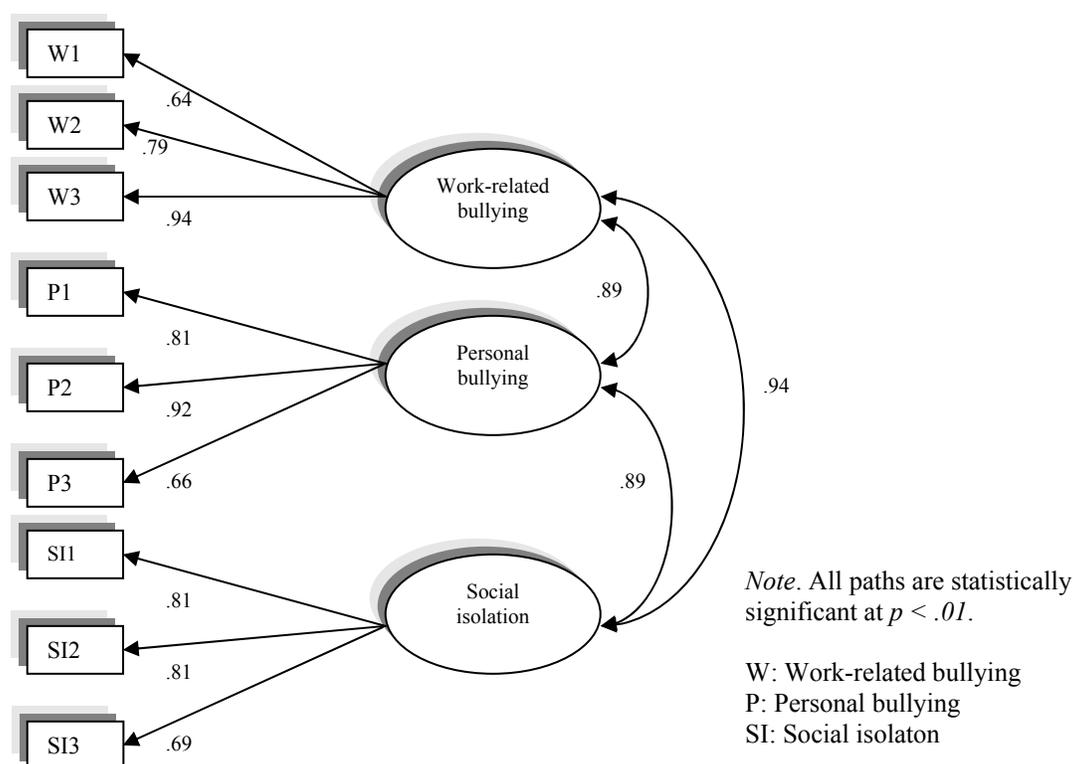
Following Notelaers and Einarsen (2008), confirmatory factor analyses of the S-NAQ was conducted on the polychoric correlations matrix, by using the weighted least square estimation method (WLS; Jöreskog & Sörbom, 1996). Table 2 reports fit indices of the different tested models in both the organizational sample and the clinical sample.

**Table 2.** Fit indices for confirmatory factor analyses of the S-NAQ.

		n.	$\chi^2$	df	GFI	AGFI	RMSEA	NFI	NNFI	CFI
Organizational sample	M1 (1-factor)	692	76.90 ( $p < .00$ )	27	.99	.98	.052	.94	.95	.96
	M2 (3-factor)	692	58.62 ( $p < .00$ )	24	.99	.99	.046	.95	.96	.97
Clinical sample	M3 (1-factor)	180	101.19 ( $p < .00$ )	27	.96	.94	.120	.90	.90	.92
	M4 (3-factor)	180	85.68 ( $p < .00$ )	24	.97	.94	.120	.92	.91	.94

As far as the organizational sample is concerned, fit indices indicate that the one-factor solution (M1) shows an acceptable fit. Despite the  $\chi^2$  value is statistically significant, the GFI, AGFI, and CFI all indicate a good fit, while the NFI and NNFI, with values of .94 and .95 respectively, suggest an acceptable fit. Finally, the RMSEA (.052) is indicative of a good fit. As far as the three-factor solution is concerned (M2), this shows a good fit: the RMSEA values emerges as equal to .046 and the other fit indices, with the exception of the NFI, are all above the value of .95. The  $\chi^2$  difference value between the one-factor solution and the three-factor solution (M1-M2) is equal to 18.28, a value that with 3 degrees of freedom (d.f. M1 - d.f. M2) is

statistically significant ( $p < .001$ ). This indicates that the three-factor solution of the S-NAQ is superior in terms of fit to the one-factor solution, which is in line with Hypothesis 1, despite it is to note that the one-factor solution is also acceptable. Completely standardized parameter estimates for the three-factor solution (see Figure 1) show that factor loadings ( $\lambda$ ) are all statistically significant, ranging from .64 to .94. Latent correlations between factors ( $\Phi$ ) are the following: .89 between Personal bullying and Work-related bullying and between Personal bullying and Social Isolation, and .94 between Work-related bullying and Social Isolation. The three confirmed factors, then, are highly correlated between each other, sharing a percentage of variance higher than 79% in all cases. As far as the clinical sample is concerned (Table 2, models M3 and M4), here the results are more ambiguous. The three-factor solution is again superior in terms of fit to the one-factor solution,  $\Delta\chi^2(3) = 15.51, p < .01$ . However, both solutions show a value of the RMSEA that, also in light of its confidence interval (Table 2), is too high. This high RMSEA, which contrasts with the adequate values shown by the other fit indices, may have been excessively influenced by the relatively small size of the clinical sample. However, in light of this ambiguity of the results, it was decided to avoid testing more stringent forms of equivalence of the S-NAQ in the two measurement settings.



**Figure 1.** Parameter estimates for the three-factor structure of the S-NAQ on the organizational data.

### *Further psychometric analyses*

Then investigated was the internal consistency of the S-NAQ and the component scales and their correlation with a series of organizational and individual variables that research has shown to be important in a bullying scenario. The purpose of these analyses was to evaluate the performance of the S-NAQ compared with the original scale within the same nomological network.

The Cronbach's alpha of the S-NAQ was .84, a value which can be regarded as good, while that of the component scales was .65 and .74 for Work-related bullying and Personal bullying scales, respectively, and .57 for the Social isolation scale. Hence, the internal consistency of the items related to this last scale does not seem satisfactory. Table 3 shows the means and standard deviations of the NAQ-R, the S-NAQ, and the three component scales and the other scales and dichotomous items used in the analyses, as well as the correlations among the same variables. For descriptive purposes, also given are the Cronbach's alphas, means and standard deviations of the S-NAQ as obtained in the clinical sample: S-NAQ ( $\alpha = .81$ ),  $M = 26.64$ ,  $SD = 8.56$ ; Work-related bullying ( $\alpha = .59$ ),  $M = 8.97$ ,  $SD = 3.48$ ; Personal bullying ( $\alpha = .71$ ),  $M = 9.42$ ,  $SD = 3.75$ ; Social isolation ( $\alpha = .59$ ),  $M = 8.48$ ,  $SD = 3.17$ . For both the total score of the S-NAQ and that of the component scales, the differences between the two samples are statistically significant in all cases ( $t$ -test). However, these comparisons should be interpreted with caution, given that they presuppose the 'strict' factorial invariance (e.g. Cheung, 2008; Vandenberg & Lance, 2000) of the scale in the two measurement contexts. The correlations of the S-NAQ with the criterion variables used in the present study (Table 3) are all statistically significant,  $p < .01$ , and in the expected direction. This supports the third hypothesis of the study. In particular, the S-NAQ positively correlates at a moderate level with two potential organizational antecedents of bullying, i.e. role conflict (Hauge, Skogstad & Einarsen, 2007),  $r = .34$ , and workplace negative social climate (Vartia, 1996),  $r = .42$ .

**Table 3.** Descriptive statistics and intercorrelations of study variables.

	<i>M (SD)</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1- S-NAQ	12.95 (4.61)	-												
2- Work-related bullying	4.54 (1.90)	.87	-											
3- Personal bullying	4.44 (1.98)	.86	.59	-										
4- Social isolation	4.04 (1.58)	.85	.63	.60	-									
5- NAQ-R	30.84 (9.54)	.95	.86	.79	.81	-								
6- Role conflict	14.62 (5.47)	.34	.35	.25	.27	.37	-							
7- Negative social climate	15.29 (4.05)	.42	.33	.38	.35	.41	.28	-						
8- JAWS	38.56 (9.06)	-.46	-.43	-.28	-.46	-.49	-.36	-.34	-					
9- GHQ	10.88 (5.05)	.39	.37	.23	.37	.43	.25	.23	-.62	-				
10- Anxiety disorder	0.15 (0.36)	.19	.15	.19	.14	.20	.15	.08*	-.23	.25	-			
11- Gastritis	0.18 (0.39)	.11	.13	.07 <sup>†</sup>	.11	.09*	.11	.07 <sup>†</sup>	-.17	.17	.21	-		
12- Colitis/irritable colon	0.26 (0.44)	.12	.12	.13	.09*	.12	.09*	.12	-.16	.16	.22	.31	-	
13- Depression	0.10 (0.30)	.24	.20	.17	.22	.26	.13	.08*	-.27	.31	.40	.17	.15	-

*Note.* If not otherwise specified, correlation is statistically significant at  $p < 0,01$ . \*  $p < 0,05$ . <sup>†</sup> not significant. JAWS: Job-related Affective Well-being. GHQ: General Health Questionnaire.

As regards the correlations between the S-NAQ and the individual variables (Table 3), the highest value is with job-related affective well-being (JAWS),  $r = -.46$ , but also very interesting are the correlations with the presence of diagnoses of pathologies that may be related to work stress. Here the data indicate statistically significant correlations both with psychological pathologies, such as depression ( $r = .24$ ) and anxiety disorders ( $r = .19$ ), and with more strictly somatic ones such as colitis/irritable bowel ( $r = .12$ ) and gastritis ( $r = .11$ ) – associations which, though modest, are worthy of note. For the purpose of comparative evaluation of the S-NAQ, it should be stressed that the NAQ-R has entirely similar correlations with the same variables, indicating that the performance of the former with the criteria selected is comparable with that of the latter. The most marked difference concerns the correlation with the GHQ ( $r = .39$  for the S-NAQ and  $r = .43$  for the NAQ-R) – a correlation, however, that remains within the moderate range for both measures. This is in line with the fourth hypothesis.

As regards correlations of the S-NAQ component scales with the criterion variables, it may be stated in general that, except in one circumstance (Personal bullying/Gastritis), all the correlations are statistically significant. In the majority of cases, moreover, the same correlations show a magnitude in the range of that of the corresponding correlations recorded by the original scale. Although the correlational patterns of the scales making up the S-NAQ are very similar to each other, some interesting differences emerge. For example, the Work-related bullying scale records a higher correlation with role conflict ( $r = .35$ ) compared with the other two scales. This appears justified from a theoretical point of view. In fact, role conflict concerns the congruency/incongruency and compatibility/incompatibility of the requirements associated with the tasks defining the role (Rizzo et al., 1970) and these, in particular if chronically inadequate, can be interpreted as a form of bullying which evidently concerns work. Or in any case, by impacting negatively on work performance, they could elicit corrective or punitive actions by the superior which are perceived as bullying. Whence derives the stronger correlation with the Work-related bullying dimension, which comprises items such as “Someone withholding information which affects your performance” and “Persistent criticism of your work and effort”. Instead, the Personal bullying scale records the highest correlation with the workplace negative social climate ( $r = .38$ ), a variable with which it shares the focus on interpersonal relations. However, it is necessary not to over-value the differences among the correlational patterns of the three S-NAQ scales, considering that these may be influenced by their different internal consistencies.

Comparison between men and women in regard to scores on the NAQ-R and the S-NAQ does not show statistically significant differences:  $t(607) = 0.97$ , n.s., in the former case and  $t(646) = 1.61$ , n.s., in the latter. However, a difference between the genders emerges on the S-NAQ Personal bullying scale,  $t(678) = 2.20$ ,  $p < .05$ , which includes actions such as “Spreading of gossip and rumours about you”. Analysis of the average values shows that women ( $M = 4.55$ ,  $SD = 2.07$ ) obtain a higher score than men ( $M = 4.22$ ,  $SD = 1.74$ ) on this scale. As regards age-based differences, a comparison among workers aged up to 39, workers aged 40-49, and workers aged over 50 does not reveal statistically significant differences in any of the scales considered.

### Discussion

The analysis reported here examined the psychometric properties of a short version of the Negative Acts Questionnaire (NAQ; Einarsen & Hoel, 2001, 2006), which is currently the tool most widely used internationally to evaluate the phenomenon of bullying. Overall, the results are in line with the findings of the recent study by Notelaers and Einarsen (2008), indicating that the performance of the Short Negative Acts Questionnaire (S-NAQ) is entirely comparable with that of the original scale (NAQ-R): in other words, that it is an equally accurate (valid and reliable) indicator of the bullying phenomenon, with the important advantage of being considerably more parsimonious in measurement of the construct.

The factorial structure of the S-NAQ appears to be better explained by a three-dimensional solution than by a solution with a single factor. The three confirmed factors, each investigated by three items, concern hostile actions that undermine the work role (Work-related bullying), actions that devalue the person (Personal bullying) and actions of social isolation (Social isolation). The internal consistency of the S-NAQ, as evaluated by Cronbach’s alpha, is .84, and is thus above the .70 threshold traditionally recommended for psychological measures (Nunnally & Bernstein, 1994). The internal consistency of the S-NAQ component scales has instead emerged as adequate for the Personal bullying scale (.74) but as below-threshold for the Work-related bullying (.65) and Social Isolation (.57) scales. Nevertheless, it should be stressed in this regard that whilst for more clearly defined psychological/cognitive states, such as depression or intelligence, the current tendency in psychometrics is to regard an alpha value at least equal to .80 as desirable, for less clearly defined constructs a value between .60 and .70 is regarded as acceptable (Kline, 1999). In the case of bullying, we have indicators of behavioral rather than mental type, for which it is not unusual to obtain relatively lower alpha values (e.g.

Spector, Fox, Penney, Bruursema, Goh & Kessler, 2006) and for which it would be worthwhile considering whether they constitute reflective measures (effect indicators) or formative measures (cause indicators) of the underlying construct (Edwards & Bagozzi, 2000). It should also be borne in mind that Cronbach's alpha is positively influenced by the numerousness of the items (Cortina, 1993) – items of which in the present case there are only three for each of the S-NAQ component scales. In light of these considerations, one may regard the internal consistency of the Work-related bullying scale as acceptable, while one has some reservations concerning the Social isolation scale – although it appears necessary to conduct further research before proposing the addition of further items.

Although from a psychometric point of view, the results suggest using the S-NAQ with the three component scales, it should be pointed out that the one-dimensional structure is not at all inadequate. In fact, its fit with the data is more than acceptable. Moreover, the correlations among the latent factors of the three-dimensional structure are very high (average value = .91), indicating constructs that are difficult to separate in practice. Finally, the internal consistency of the nine-item scale has proved to be excellent. Consequently, and considering in particular that at present the evidence in support of a different correlations network for the S-NAQ component scales is practically non-existent, future research should shift to the total score of the S-NAQ as an indicator of the bullying construct (see, for an entirely similar case: Schaufeli, Bakker & Salanova, 2006; Balducci, Fraccaroli & Schaufeli, in press). Thus avoided would be problems of multicollinearity in regression equations with observed variables in which the three component scales are included simultaneously. For analyses conducted with structural equation models, instead, one could legitimately use three component scales as indicators of the latent factor Bullying.

The factorial analysis carried out on the clinical sample has confirmed the better fit of the three-dimensional structure. Nevertheless, the fit indices give rise to a certain interpretative ambiguity. In fact, the excessively high value of the RMSEA leads to rejection of the invariance hypothesis, and hence to consideration of the alternative hypothesis: namely that individuals who seek clinical treatment because they consider themselves victims of bullying have a concept of the phenomenon which differs at least partly from the findings of organizational studies – a hypothesis, moreover, that would open interesting avenues of research. However, the other fit indices of the models tested were all adequate – particularly for the three-dimensional structure. Besides, as recently stressed by Chen, Curran Bollen, Kirby and Paxton (2008), the RMSEA

tends to underestimate the adequacy of the model examined for small samples, thus increasing the possibility of committing errors of the second type, although the same study also evinces that an acceptability threshold moved to a value of 0.12 (the one obtained by the present study) would be excessively liberal. Consequently, even though in the clinical sample the three-factor structure proves to be better than the one-dimensional structure, some doubts remain concerning confirmation of the hypothesis of configural invariance. At the same time, however, it appears premature to speculate on the alternative structure of the construct in a clinical setting, and on the possible reasons for the divergence; it being advisable instead to wait for further studies conducted on larger samples.

The S-NAQ has shown statistically significant correlations and in the expected direction with the criterion variables used in this study; variables that in previous research have proved to be important organizational (role conflict and social climate of the workplace) and personal correlates (job-related affective well-being, stress, and medical diagnoses of stress-related pathologies) of bullying. This supports the criterion validity of the S-NAQ. Moreover, the correlations recorded by the S-NAQ with the criterion variables are all in the range of the correlations recorded by the NAQ-R with the same variables. These results confirm that the performance of the S-NAQ is entirely comparable with that of the NAQ-R, with the advantage that the S-NAQ is clearly more parsimonious in measuring the bullying construct (9 items against 22).

This advantage is of no little account, given the necessity in research and applications in organizational psychology to have tools able adequately to evaluate, and with few items, the construct under examination. In terms of versatility, therefore, at present the S-NAQ is a step ahead of all the other tools available for the evaluation of bullying in Italian and internationally; tools which instead either evaluate the construct less accurately (e.g. the LIPT; see on this Ceresia & Lupo, 2003) or are considerably less parsimonious (e.g. the CDL 2.0 and the QAM 1.6). Added to this is the further significant advantage that because the S-NAQ derives from a tool available in a large number of countries, it is the only one which enables cross-cultural studies on bullying.

The results of this study have not shown significant differences between men and women as regards exposure to bullying. According to Zapf and Einarsen (2005) and Zapf et al. (2003), the greater female exposure to the phenomenon found by some studies is due to a failure to control for the organizational position occupied. In other words, it is a consequence of the fact

that women more frequently occupy weaker hierarchical positions and are therefore more at risk of bullying. In the present study, entirely focused on non-managerial personnel, the variability relative to the hierarchical position is limited, and this may help explain the results obtained, which support the arguments of Zapf and Einarsen (2005) and Zapf et al. (2003). However, the analyses conducted at the level of the individual dimensions of bullying have revealed the presence of a significant difference between men and women due to the greater exposure of the women to hostile actions which undermine personal reputation, such as “Spreading of gossip and rumours about you” and “Having insulting or offensive remarks made about your person [...]”. It would seem, therefore, that differences may exist at this level which are independent from the hierarchical position occupied. Given the somewhat ambiguous significance of the items of the Personal bullying scale – items which also certainly evoke the possible experience of sexually-connoted hostile actions – it would be interesting in the future to evaluate the extent to which these differences are due to differing exposure of the two genders to sexual harassment – rather than bullying – a phenomenon for which there instead exist gender-based differences (e.g. Pryor & Fitzgerald, 2003).

The most important limitation of the present study is that it has used a clinical sample of non-optimal numerosness, with the consequence that the results of the analyses on it have not allowed sufficiently clear conclusions to be drawn. Another limitation is that the organizational sample consisted solely of public-sector workers in non-managerial jobs, so that the resilience of the results on a sample of workers with other characteristics remains to be tested. Despite these limitations, however, the present study is a step forward in research in this area, because it furnishes evidence for the reliability and validity of a tool easy to administer and which lends itself to cross-cultural comparisons relatively to a construct that will continue to attract interest in the near future, at both the scientific and applied levels. As regards scientific search, in fact, investigation has just begun into the causes of bullying, while entirely lacking are studies evaluating the effectiveness of schemes to prevent the phenomenon. At applied level, the recently enacted consolidated law on health and safety at work (Legislative Decree 81/2008) transposing European directives has made it compulsory to assess psychosocial risks in organizations, and bullying is one of those risks. In both circumstances, the availability of a tool with the characteristics of the S-NAQ cannot but be helpful.

## Appendix

### The Short Negative Acts Questionnaire (S-NAQ) (Italian version)

Con che frequenza, negli ultimi sei mesi, ha subito ciascuno dei seguenti comportamenti nel suo luogo di lavoro?

1. Le sono state nascoste informazioni che influenzano la sua prestazione lavorativa (W1)
2. Sono state diffuse chiacchiere e dicerie nei suoi riguardi (P1)
3. E' stato ignorato, escluso o emarginato (SI1)
4. Sono state fatte osservazioni offensive sulla sua persona (ad es. sulle sue abitudini), sui suoi atteggiamenti o sulla sua vita privata (P2)
5. Le hanno alzato la voce o è stato bersaglio di attacchi istintivi di rabbia (P3)
6. Le hanno fatto notare ripetutamente i suoi errori (W2)
7. Nel rivolgersi agli altri è stato ignorato o si è imbattuto in reazioni ostili (SI2)
8. Hanno criticato costantemente il suo lavoro ed il suo impegno (W3)
9. Le sono stati fatti scherzi spiacevoli da persone con le quali non va d'accordo (SI3)

Nota:

W = Work-related bullying; P = Person-related bullying; SI = Social isolation

Le risposte sono raccolte utilizzando la seguente scala:

1 = Mai

2 = Una volta in tutto o di tanto in tanto

3 = Mensilmente

4 = Settimanalmente

5 = Quotidianamente

## Chapter 4

### **Workplace bullying and its relation with work characteristics, personality, and post-traumatic stress symptoms: An integrated model**

#### Abstract

Workplace bullying refers to prolonged exposure to frequent hostile behaviors at work which are primarily psychological in nature. Research in this area has not revealed a clear picture on how bullying escalates in organizations. Drawing on recent developments in work stress theory, this study tested a comprehensive model of bullying in which work environmental factors were considered as antecedents of bullying, neuroticism as a control variable, and post-traumatic stress symptoms as an outcome. Structural equation modelling on data provided by 818 public employees in Italy, confirmed a mediating effect of bullying in the relationship between job demands (workload, role conflict and *laissez-faire* leadership) and job resources (decision authority, co-worker support and salary/promotion prospects), on the one hand, and post-traumatic stress symptoms on the other. Furthermore, family-to-work conflict was also related to bullying. Evidence also emerged of a buffering effect of job resources on the relationships between job stress inducing factors and bullying. Results suggest that work environmental factors may play a critical role in the development of bullying independently of the effect of the victim's personality (i.e. level of neuroticism).

Keywords: workplace bullying; job demands and job resources; post-traumatic stress; neuroticism

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## Introduction

The phenomenon of workplace bullying, which indicates the victimization of an individual at work (Leymann, 1990a, 1996), has been a topic which has received increasing attention in occupational research over the last ten to fifteen years or so. According to a widely accepted definition, workplace bullying refers to prolonged exposure to frequent negative and hostile behaviors at work which are primarily psychological in nature, such as excessive criticism of one's work, withholding of information which affects performance, spreading of rumours, social isolation, etc. (Einarsen, 2000; Einarsen, Hoel, Zapf & Cooper, 2003; Leymann, 1990a, 1996; Zapf & Einarsen, 2005). In the long run these behaviors may lead to the stigmatisation and victimization of the exposed individual and to severe stress reactions (e.g. Einarsen & Mikkelsen, 2003; Leymann & Gustafsson, 1996). Most of the studies in this area have conceptualized workplace bullying as a psychosocial risk at work and have investigated its relationship with individual well-being. Accordingly, a clear link has been established between the occurrence of bullying and clinically relevant anxiety and depressive symptomatology (Brousse, Fontana, Ouchchane, Boisson, Gerbaud et al., 2008; Hansen, Hogh, Persson, Karlson, Garde et al., 2006; Kivimäki, Virtanen, Vartia, Elovainio, Vahtera et al., 2003; Niedhammer, David, Degioanni & 143 occupational physicians, 2006; Quine, 1999, 2001; Zapf, Knorz & Kulla, 1996). Recent research has also found that extreme bullying is related to suicidal ideation and behavior (Balducci, Alfano & Fraccaroli, 2009).

Despite important advancements in terms of refinement of the construct and understanding of the individual effects of the phenomenon, workplace bullying is still considered an emerging psychosocial risk at work and an area in which there is a need for further research (Bowling & Beehr, 2006; European Agency for Safety and Health at Work, 2007). This is because research on the causes of bullying and on the effect of possible preventive interventions is still in its infancy. In other words it is not at all clear how workplace bullying develops in organizations and, as a consequence, there are no standards of practice for reducing the risk of its occurrence. In the present study we contribute to research in this area by developing and testing an overall model of bullying which presents the following three unique features: it integrates work environmental and personality factors as potential preconditions of bullying; it includes traditional job stressors but also buffering resources; and it examines post traumatic stress disorder as a possible consequence of the bullying-related victimization.

*Development of bullying: The role of the work environment*

Among the hypotheses that have been put forward to explain the occurrence of bullying, a differentiation progressively emerged between an explanation that places an emphasis on the role of the work environment (Agervold & Mikkelsen, 2004; Einarsen, 2000; Hauge, Skogstad & Einarsen, 2007; Hoel & Salin, 2003; Leymann, 1990a, 1996) and an explanation in which the emphasis is on the characteristics of the victim (Coyne, Smith-Lee Chong, Seigne & Randall, 2003; Matthiesen & Einarsen, 2001; Zapf & Einarsen, 2003, 2005). According to the work environment hypothesis, first introduced by Leymann (1996), poor psychosocial conditions at work may determine biological stress reactions, which in turn can promote experiences of frustration. Frustrated employees may be prone to attributional errors in analysing the causes of their stress and may blame each other; so bullying would escalate as a consequence of this climate of conflicting relationships. A similar interpretation from a social interactionist perspective was given by Neuman & Baron (2003, 2005), according to whom organizational stressors can create a hostile work environment which in turn generates critical internal states in individuals exposed to this environment that may provide an instigation towards aggression. The stressor-emotion model recently proposed by Spector and Fox (2005), which assumes a causal chain leading from organizational stressors to negative emotions and to aggressive reactions, is another theoretical perspective that also converges with this interpretation. According to the work environment hypothesis, thus, targets of bullying (as well as agents of bullying) are exposed to job-stress inducing factors.

However, empirical data on this hypothesis remain sparse. While research has shown, by using both qualitative and quantitative methodologies (Einarsen, Raknes & Matthiesen, 1994; Hodson, Roscigno & Lopez, 2006; Leymann, 1996; O'Moore, Seigne, McGuire & Smith, 1998; Vartia, 1996; Vartia & Hyyti, 2002), that victims of bullying report poor psychosocial work environments (e.g. a more competitive social climate, higher workload, less social support, inadequate leadership), the systematic investigation of predicting factors and explaining processes of workplace bullying in the light of more robust models of work stress has only recently started up. Agervold and Mikkelsen (2004), in one of the first studies, found that employees who are frequently exposed to bullying reported less job control, work tasks which are more unclear or contradictory, a management style which is less employee-oriented, and fewer social contacts with co-workers. However, in this study, the bullied group included only 25 employees. More recently Skogstad, Einarsen, Torsheim, Aasland and Hetland (2007) found that

a *laissez-faire* leadership style as well as role conflict and role ambiguity were antecedents of bullying, with role stressors mediating the effect of abdicating leadership on workplace bullying. These findings were corroborated in another recent northern European study, in which Hauge et al. (2007), by using a representative sample of the Norwegian workforce, found that job demands, decision authority, role stressors, interpersonal conflict, and job insecurity were all significant predictors of workplace bullying, accounting for 43% of variance in the Negative Acts Questionnaire (NAQ; Einarsen & Hoel, 2001), a widely used measure of the phenomenon. When three different measures of leadership style (constructive, *laissez-faire*, and tyrannical leadership) were added to the model, a further 10% of variance in the NAQ was accounted for. Furthermore, *laissez-faire* leadership style moderated the effect of some work stressors on workplace bullying, indicating that, for instance, when employees experienced an accentuated level of *laissez-faire* leadership, there was a stronger positive effect of role conflict on workplace bullying. In a recent meta-analysis on workplace bullying factors, Bowling and Beehr (2006) reported that work constraints, role conflict and role ambiguity are the strongest potential antecedents of workplace harassment. Overall, this is in line with results emerging from the use of qualitative methodologies: Hodson et al. (2006), for example, on the basis of the analysis of 148 organizational ethnographies, concluded that coherent production procedures provide a context in which bullying is unnecessary and disallowed. Taken together, these results suggest that Leymann's (1996) hypothesis that bullying may develop in workplaces with poor work organization, most probably due to inadequate managerial practices, could be the right one.

#### *Personal characteristics and workplace bullying*

All of the studies reviewed above on the work environment as a critical antecedent of bullying neglect the role of personality factors in the occurrence of the phenomenon. This is an important shortcoming in this area of research, since it may well be that personal characteristics are the 'third factor' influencing both perception of the working conditions and that of being bullied. It is increasingly acknowledged by occupational health researchers that in a rapidly changing work environment, with the loss of clear boundaries delimiting work and its performance, and in more uncertain working conditions (Allvin, 2008) – where organizational restructuring and rationalizations become a frequent experience – personal characteristics may emerge as progressively more important in determining individual adaptation to work. It has been hypothesised (Cunningham, De La Rosa & Jex, 2008) that the effect of both stable

personality traits (i.e. neuroticism, conscientiousness, openness to experience) and more malleable characteristics (i.e. self-efficacy, self-monitoring) will overcome the effect of environmental conditions on work-related well-being. Cunningham et al. (2008), for example, suggested that in an environment in which there is a decrease in situational consistency and in which working under stress becomes the rule rather than the exception, high levels of neuroticism will have an increasingly negative impact on individual reactions to work.

There is strong evidence for a relationship between bullying and certain personality traits (Coyne, Seigne & Randall, 2000; Coyne et al., 2003; Matthiesen & Einarsen, 2001; Smith, Singer, Hoel & Cooper, 2003; Vartia, 1996; Zapf, 1999). Coyne et al. (2000), for example, found that victims of bullying displayed significantly higher levels of instability (more anxious, neurotic or suspicious), of dependence (less assertive, less competitive, less outspoken), of conscientiousness (more conventional and dependable) and of introversion than non-victims. In a subsequent study, Coyne et al. (2003) replicated these findings by showing that victims of bullying were generally less able to cope with most situations, displayed a tendency, in comparison to controls, to be easily upset, and were more likely to experience difficulty in coping with personal criticism; they also tended to be more anxious, tense, and suspicious of others. Similar results were recently reported in a sample of victims who sought clinical advice (Brousse et al., 2008). In this study 88% of the victims reported high trait-neuroticism at first consultation, with this percentage remaining statistically unchanged at the one-year follow-up. In a Finnish study of hospital employees, Kivimäki et al. (2003) showed not only that undergoing bullying at baseline predicted the incidence of depression at two-year follow-up, but also that the presence of a diagnosis of depression at baseline predicted the incidence of bullying at follow-up, suggesting that personal psychological factors may be implicated in becoming a victim of bullying.

Overall these results seem to be compatible with two kinds of victims (see also Aquino & Lamertz, 2004): the socially anxious and/or depressed and submissive individual, who becomes a victim because he or she is considered incapable of reacting, and the neurotic individual, who readily becomes aggressive under stress, thus provoking actions of retaliation in others. It is interesting to note that these results are in line with those shown by research on school bullying, from which it emerges that victims are usually more introverted, anxious and less confident than others (Olweus, 2003), but that there are also aggressive and provocative victims (Olweus, 2003; Schwartz, Dodge, Pettit & Bates, 1997). Both kinds of victims are similar in that they lack social

competencies – a lack that may instigate aggressive behaviors in others (Schuster, 1996). Consistent with this is the finding of Smith et al. (2003) that workplace bullying victims reported that they had been the targets of school bullying more often than did non-victims, making a case for pre-existing personal differences between bullying victims and other workers. The overall position of a relationship between bullying and personality has been clearly expressed by Zapf and Einarsen (2005): “Contrary to the early statements of Leymann (1993), several studies have been carried out in recent years that point to potential causes of mobbing [C.B.: i.e. workplace bullying] in the victim. These studies have found differences between victims and non-victims of bullying that seem more likely to be causes rather than consequences of bullying” (p. 253).

#### *A comprehensive model of bullying*

Unfortunately, research on the work environment and on personality as potential antecedents of bullying has mostly been parallel in nature, with the consequence that no study is available in which both organizational and personal factors in workplace bullying have been examined simultaneously. In the present study we address this shortcoming by testing a comprehensive mediation/moderation model of bullying and its consequences in which environmental and personality factors are integrated. In this model, to operationalize the effect of work environmental factors, we use the framework of a recently introduced model of work stress: the job demands-resources (JD-R) model (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004). According to the JD-R model, although each work environment may have its own peculiar psychosocial characteristics, these characteristics may be differentiated into two overarching factors: job demands and job resources. Job demands refer to aspects of the job (e.g. physical and psychological demands) that require physical or mental effort and that therefore may generate work-related stress, thus acting as a potential triggering factor for interpersonal conflicts and bullying. Job resources, on the other hand, are those aspects (e.g. decision latitude and social support) that are functional in reaching work goals and/or in reducing job demands and that may protect individual health and promote well-being and motivation. Thus, job resources may be hypothesised as acting as a buffering factor in the escalation of bullying, which would be consistent with the widely known buffering hypothesis (see, for example, Bakker, Demerouti, Euwema, 2005; Xanthopoulou, Bakker, Dollard, Demerouti, Schaufeli, Taris & Schreurs, 2007). As far as personal factors are concerned, these may constitute a risk element in their being involved in interpersonal conflicts and bullying, as much of the literature discussed

above (e.g. Schuster, 1996) implies. For example, a characteristic such as neuroticism may fuel a sinister attributional bias at work (Kramer, 1994), which in turn may lead one to ascribe the causes of one's frustration to colleagues or the supervisor, thus increasing the chance of conflict occurrence, or may, perhaps, directly lead to a hostile interpretation of the work environment.

As a further original aspect of the proposed model of bullying, we not only concentrate on 'traditional' job demands such as workload or role stressors as potential antecedents of bullying, as has been done in previous research (e.g. Hauge et al., 2007), but also examine the effect of work-family conflict – an increasingly prevalent form of interrole conflict emerging when the demands from work and the family are at least in part incompatible (Frone, 2003; Greenhaus & Beutell, 1985). Recent changes in the world of work emphasize the relevance of this work-related issue (European Agency for Safety and Health at Work, 2007). Work-family conflict is associated with a number of negative outcomes for exposed individuals, such as emotional distress or depressive symptoms (Frone, 2000; Frone, Russell & Cooper, 1997). The effect of work-family conflict in the development of bullying has not been explored in previous research. Thus, we reasoned that if workplace bullying is indeed triggered by environmental stressors which increase the chance of conflict occurrence in the workplace, as is postulated by the work environment hypothesis, then work-family conflict may also be an important factor in the occurrence of bullying.

A final aspect of novelty of the proposed model, is that the consequences of bullying are also taken into consideration. Previous research has found that bullying may lead to traumatic consequences (Einarsen & Mikkelsen, 2003), namely the development of Post-Traumatic Stress Disorder (PTSD; APA, 2000). Although it is a matter of debate whether bullying may be considered an overwhelming traumatic event (for a discussion on this see Balducci et al., 2009; Mikkelsen & Einarsen, 2002), Leymann and Gustafsson (1996) argued that PTSD may be a typical reaction to bullying and indeed found that 92% of 62 victims of bullying could be diagnosed with PTSD. Subsequently, similar results emerged in the studies reported by Mikkelsen and Einarsen (2002), Matthiesen and Einarsen (2004), Nielsen, Matthiesen, and Einarsen (2008) and Balducci et al. (2009). However, a potential limitation of the reported studies is that in none of the cases was an organizational sample of participants included. Rather, contacts were made either with victims from anti-bullying associations (e.g. Mikkelsen & Einarsen, 2002) or with victims who sought help for their bullying-related condition in mental health counselling centres (e.g. Balducci et al., 2009). These victims may differ from bullying

victims in general (Nielsen & Einarsen, 2008); for example, they may represent only the most extreme cases of bullying, or cases in which the consequences of the phenomenon have been exacerbated by the sequence of events following bullying, such as incorrect mental disorders diagnosis (e.g. paranoid personality disorder) or expulsion from the labour market (Leymann, 1990a, 1996). In all these cases the relationship between bullying and PTSD may have been substantially inflated, perhaps even created. In the comprehensive model of bullying explored in the present study, we further investigated the relationship between bullying and PTSD and hypothesised that bullying would mediate the effect of work environmental factors on the development of PTSD symptomatology. In other words we hypothesised a chain of relationships, in which work environmental factors are related to bullying, which in turn is related to PTSD symptoms. In this model, neuroticism, which is usually taken to include anxiety, depression, hostility and moodiness (for a review see Warr, 2007), was considered as a vulnerability factor for both bullying and PTSD symptoms, and therefore was used as a control variable.

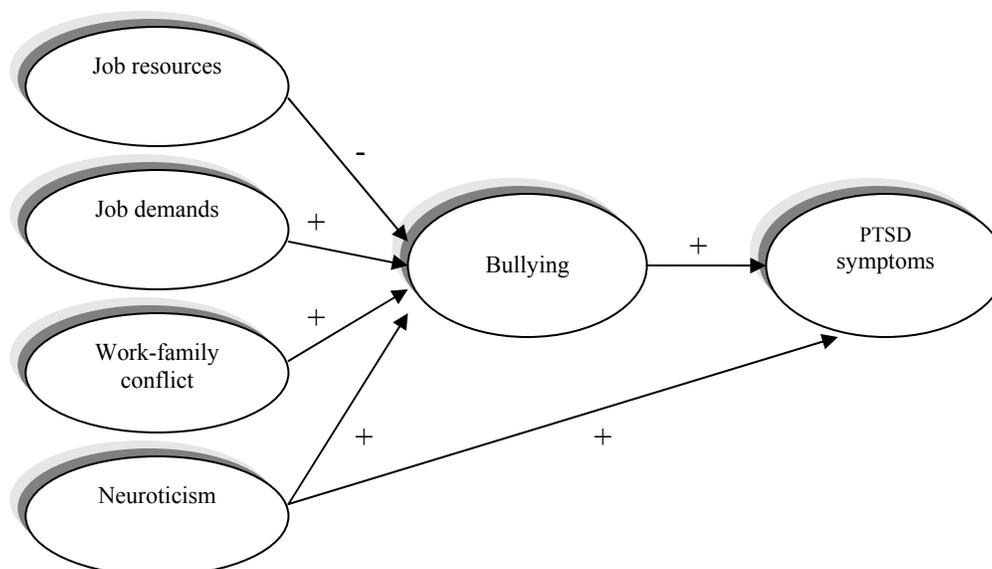
Our hypothesised model of bullying is represented in Figure 1. With the analyses we specifically sought evidence for the following hypotheses:

Hypothesis 1: Psychosocial factors are related to bullying, with job demands and work-family conflict being positively related, and job resources negatively related, to the occurrence of bullying.

Hypothesis 2: Bullying is positively related to core symptoms of PTSD.

Hypothesis 3: Bullying mediates the relationship between psychosocial factors (i.e. job demands, job resources and work-family conflict), on the one hand, and PTSD symptoms on the other.

Hypothesis 4: Job resources buffer the effect of work stress inducing factors (i.e. job demands and work-family conflict) in the escalation of bullying.



**Figure 1.** The hypothesised model.

## Method

### *Participants*

Data were collected as part of a psychosocial risk assessment conducted from April to October 2007 in a large public organization in Italy. Workers (prevalently white-collars) in non-managerial positions were requested to fill in a structured, anonymous questionnaire investigating a number of psychosocial aspects of work and health outcomes. The administration took place during working hours, separately for each department of the organization, at a time agreed in advance with management and workers representatives. Participation was on a voluntary basis. At the end of data collection, questionnaires from 818 employees (response rate 58,8%) were available, of whom 50.3% were females. Age of participants was distributed as follows: 0.8% were 20-29 years, 21% were 30-39, 42.7% were 40-49, 32.1% were 50-59 and 3.4% were 60 or more. Most of participants (97.9%) had a permanent job contract.

### *Instruments*

*Bullying.* Workplace bullying was investigated by using a shortened version (Notelaers & Einarsen, 2008) of the Negative Acts Questionnaire (NAQ; Einarsen & Hoel, 2001). This version of the questionnaire consists of 9 items exploring how often the respondent has been subjected to a number of negative behaviors at work (e.g., “Someone withholding information which affects performance”), with responses varying from 1 (‘Never’) to 5 (‘Daily’). The items define three

components of bullying, each investigated by three items: Work-related bullying, personal bullying and social isolation. These components were taken as the observed indicators of the underlying construct. Internal consistencies of indicators are given in Table 1 (see below).

*PTSD.* Symptoms of PTSD were explored by using a validated brief version (Lang & Stein, 2005) of the PTSD Checklist-civilian scale (PCL-C; Weathers, Litz, Huska, & Keane, 1994). This version of the questionnaire includes six items (e.g. “Experienced repeated, disturbing memories, thoughts or images of the traumatic event”) which assess three types of symptoms (i.e., re-experiencing, avoidance, and hyper-arousal) as defined by the DSM IV-TR (APA, 2000). Each type of symptom is assessed by two items. For the analyses these three 2-item measures were the observed indicators of the PTSD construct. Where the original item was anchored to “the traumatic event”, we modified the item by anchoring it to “the negative behaviors” defining bullying. Responses varied from 1 (‘Never’) to 5 (‘Extremely’).

*Job demands.* We operationalized job demands by using three observed indicators: role conflict, workload, and a *laissez-faire* leadership style. Role conflict was measured by using six items (e.g., “I receive incompatible requests from two or more people”) from the role conflict scale developed by Rizzo, House, and Lirtzman (1970). Responses ranged from 1 (‘Entirely true’) to 5 (‘Entirely false’), with items being reversed coded before computing the scale total. Workload was measured by using the five-item Effort scale (e.g., “I have constant time pressure due to a heavy workload”) from the Effort-reward imbalance questionnaire (Siegrist, Starke, Chandola, Godin, Marmot, Niedhammer, & Peter, 2004). Responses on this scale vary from 1 (‘Disagree’) to 5 (‘Agree, and I’m very disturbed by this’). *Laissez-faire* leadership was measured by using six items (e.g., My supervisor has avoided telling me how to perform my job) with four items being derived from the Multifactor Leadership Questionnaire (Bass & Avolio, 1990) and two items being developed for the present study on the basis of a definition of *laissez-faire* leadership (Eagly, Johannesen-Schmidt, & Engen, 2003). Responses varied from 1 (‘Disagree strongly’) to 5 (Agree strongly). A preliminary principal component analysis run on these six items indicated the presence of only one factor, accounting for 64.2% of the total variance.

*Work-family conflict.* This construct has a dual nature (Frone, 2003): family life can interfere with work life (i.e., family-to-work conflict) and work life can interfere with family life (i.e., work-to-family conflict). Recent meta-analyses (e.g., Byron, 2005) support the idea that

work-to-family conflict and family-to-work conflict are clearly distinct phenomena, with the former having work characteristics as the main antecedents, while the latter being more heavily shaped by family and individual factors. In the present study it was decided to only include family-to-work conflict among the potential antecedent of bullying. This decision was taken because preliminary interviews with employees revealed that work-to-family conflict was not an important stressor in the focused public organization. Furthermore and more importantly, it would be relatively more difficult to interpret the effect of work-to-family conflict as a stressor on the occurrence of bullying, since bullying actions (e.g. being given unmanageable workload) may actually induce work-to-family conflict. Family-to-work conflict was operationalized by means of two items (e.g., “In the last 6 months how often did your home life interfere with your responsibilities at work, such as getting to work on time, accomplishing daily tasks, or working overtime?”) taken from Grzywacz, Frone, Brewer, and Kovner (2006). Responses varied on a scale from 0 (Never) to 5 (5 or more days per week).

*Job resources.* We operationalized job resources in terms of salary/promotion prospects, co-worker support and decision authority. Salary/promotion prospects were explored by four items (e.g., “Considering all my efforts and achievements, my job promotion prospects are adequate”) making up the Salary/promotion scale from the Effort-reward imbalance questionnaire (Siegrist et al., 2004). Responses varied from 1 (Yes) to 5 (No, and I’m very disturbed by this), with items being reversed coded before computing the scale total. Co-worker support was measured by four items (e.g. “My co-workers are friendly with me”) and decision authority by three items (e.g. “I have a say in the organization of my work); both scales were taken from the Job Content Questionnaire (Karasek, Brisson, Kawakami, Houtman, Bongers, & Amick, 1998), with responses varying from 1 (‘Disagree, strongly’) to 4 (‘Agree, strongly’).

*Personality.* Neuroticism was measured by using a 9-item scale (e.g., “I get upset easily”) derived from a public domain big-five personality inventory included in the International Personality Item Pool (IPIP; e.g., Goldberg, 1999). Responses on this scale varied from 1 (‘Not at all’) to 5 (‘Completely’). For the analyses we randomly derived two parcels from the overall scale, one parcel made by four items and the other made by five items.

### *Analyses*

Preliminary descriptive analyses were run by using widely known analytical tools as available in SPSS 15.0. To test our hypotheses we conducted structural equation modelling

(SEM) analysis by using LISREL 8.71 (Jöreskog & Sörbom, 1996). To study the hypothesised moderation effects (Hypothesis 4), we used a variant of SEM known as moderated structural equation modelling (MSEM; Cortina, Chen, & Dunlap, 2001), a data analysis method that permits to integrate multiplicative effects into SEM models. This method, which may be implemented by using a number of different techniques, is still rarely used in the organizational sciences (Cortina et al., 2001). More details on MSEM will be given below.

Since a number of variables exhibited a skewed distribution, with both workplace bullying and PTSD showing a very skewed distribution, we opted for the robust maximum likelihood estimation method to run all SEM analyses (see Olsson, Foss, Troye, & Howell, 2000). The fit of the structural equation models was evaluated by using the Satorra & Bentler (S-B; 2001) scaled  $\chi^2$  statistic and a variety of other practical fit indices (Byrne, 1998; Tabachnick & Fidell, 2007). Models showing values of up to .08 at the RMSEA (Jöreskog & Sörbom, 1996) and values of .90 or higher for the NFI, NNFI and CFI (Bentler, 1992) are usually considered as acceptable. Models showing values of up to .06 at the RMSEA and values of .95 or higher at the NFI, NNFI and CFI are considered as having a good fit (Hu & Bentler, 1999). We considered changes in  $\chi^2$  and differences in the fit indices to evaluate the comparative fit of the models (Hu & Bentler, 1999).

## Results

### *Descriptive statistics and correlations*

Table 1 reports descriptive statistics of study variables and Pearson's correlations between them. The three bullying aspects correlated statistically significantly and in the expected direction with all the variables included in the study. The PTSD component scales showed positive and relatively strong associations ( $r$  ranging from .38 to .49) with the three forms of bullying. Interestingly, the job demand of role conflict showed a stronger association with work-related bullying, rather than with the other forms of bullying, while *laissez-faire* leadership showed a stronger association with the social isolation facet of bullying. Among job resources, salary/promotion prospects and decision authority showed higher associations with work-related bullying, while co-worker support with the social isolation component of bullying. To note, finally, is that the neuroticism indicators were positively correlated in the low/moderate range with the bullying components and in the moderate/high range with all the different PTSD symptoms scales.

**Table 1.** Descriptive statistics of study variables and Pearson's correlations.

	<i>M(SD)</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1- NAQ-Work-related bullying	4.54 (1.90)	.65															
2- NAQ-Personal bullying	4.44 (1.98)	.59	.74														
3- NAQ-Social isolation	4.04 (1.58)	.63	.60	.57													
4- PTSD-Re-experiencing	2.99 (1.76)	.49	.45	.49	.87												
5- PTSD-Avoidance	3.38 (2.04)	.41	.42	.49	.72	.76											
6- PTSD-Hyperarousal	3.19 (1.72)	.43	.38	.43	.64	.63	.80										
7- Role conflict	14.62 (5.47)	.35	.25	.27	.25	.25	.28	.76									
8- Workload	9.82 (3.99)	.28	.30	.26	.33	.26	.33	.32	.84								
9- <i>Laissez-faire</i> managerial style	17.02 (5.41)	.25	.14	.31	.22	.22	.21	.33	.22	.90							
10- Salary/promotion prospects	13.11 (4.55)	-.30	-.18	-.27	-.32	-.31	-.29	-.26	-.24	-.27	.81						
11- Coworker support	20.52 (4.91)	-.28	-.30	-.34	-.21	-.24	-.17	-.16	-.16	-.20	.28	.73					
12- Decision authority	8.08 (1.57)	-.20	-.15	-.15	-.20	-.17	-.17	-.14	.07†	-.11	.25	.16	.69				
13- Family-to-work conflict–Item 1	0.99 (1.26)	.14	.11	.14	.11	.15	.13	.04†	.11	.01†	-.08	.03†	.00†	-			
14- Family-to-work conflict–Item 2	0.70 (1.14)	.24	.14	.22	.17	.18	.20	.07*	.11	.01†	-.10	-.07*	-.04†	.68	-		
15- Neuroticism–Parcel 1	10.58 (4.27)	.29	.18	.30	.39	.36	.45	.18	.26	.10	-.14	.10	-.15	.15	.23	.81	
16- Neuroticism–Parcel 2	8.56 (3.50)	.29	.23	.26	.38	.29	.37	.18	.26	.06†	-.09*	-.09*	-.12	.17	.22	.72	.86

*Note.* Unless otherwise stated, correlations are statistically significant at  $p < .01$ . \*  $p < .05$ . † n.s. Cronbach's alphas are reported along the diagonal, where appropriate.

*SEM analysis: Preliminary analysis and test of the mediation model*

Before testing our main hypotheses, we checked for whether the latent factors job demands and job resources could be differentiated empirically. To this end we used confirmatory factor analysis (CFA), comparing the fit of a second order two-factor (job demands and job resources) model to the fit of a second order one-factor (psychosocial risk) model. In the two-factor model the first order factors were role conflict, workload and *laissez-faire* leadership for job demands, while salary/promotion prospects, co-worker support and decision authority for job resources. In the one-factor model the same first order factors all loaded on a second-order psychosocial risk factor. Observed measures for these preliminary analyses were the following: role conflict, workload, *laissez-faire* leadership, salary/promotion prospects and co-worker support were each indicated by two randomly derived parcels (Bagozzi & Edwards, 1998; Bandalos & Finney, 2001), while decision authority by the three component items. CFA results for the one-factor model were the following: S-B  $\chi^2(59) = 229.52$ ; GFI = .93; AGFI = .88; RMSEA = .066; NFI = .94; NNFI = .94; CFI = .95. Results for the two-factor model were the following: S-B  $\chi^2(58) = 180.66$ ; GFI = .94; AGFI = .91; RMSEA = .056; NFI = .95; NNFI = .95; CFI = .96. A Satorra and Bentler (2001) scaled  $\chi^2$  difference test indicated that the two-factor model fitted significantly better than the one-factor model, S-B  $\Delta\chi^2(1) = 19.41$ ,  $p < .001$ . The estimated correlation between the second order job demands and job resources factors was  $\Phi = -.48$ . On the whole, results supported the differentiation of a latent job demands factor from a latent job resources factor.

Table 2 displays the results of a series of SEM models by which we tested our hypotheses. Model 1 – in which job demands (i.e., role conflict, *laissez-faire* leadership and workload), job resources (i.e., salary/promotion prospects, decision latitude and co-worker support), family-to-work conflict and neuroticism were all related to bullying – fitted the data well with all the hypothesised paths being in the expected direction. Neuroticism had a statistically significant effect on bullying ( $\gamma = .17$ ;  $p < .05$ ). In line with Hypothesis 1, job demands ( $\gamma = .29$ ;  $p < .05$ ), job resources ( $\gamma = -.41$ ;  $p < .05$ ) and family-to-work conflict ( $\gamma = .13$ ;  $p < .05$ ) were also statistically significantly related to bullying. Model 2 tested for the effect of bullying on PTSD symptoms controlling for the effect of neuroticism, which was related to both bullying and PTSD symptoms. The fit of this model was quite good. Parameter estimates indicated that neuroticism influenced both bullying ( $\gamma = .41$ ;  $p < .05$ ) and PTSD symptoms ( $\gamma = .27$ ;  $p < .05$ ); importantly, and in line with Hypothesis 2, the path from bullying to PTSD

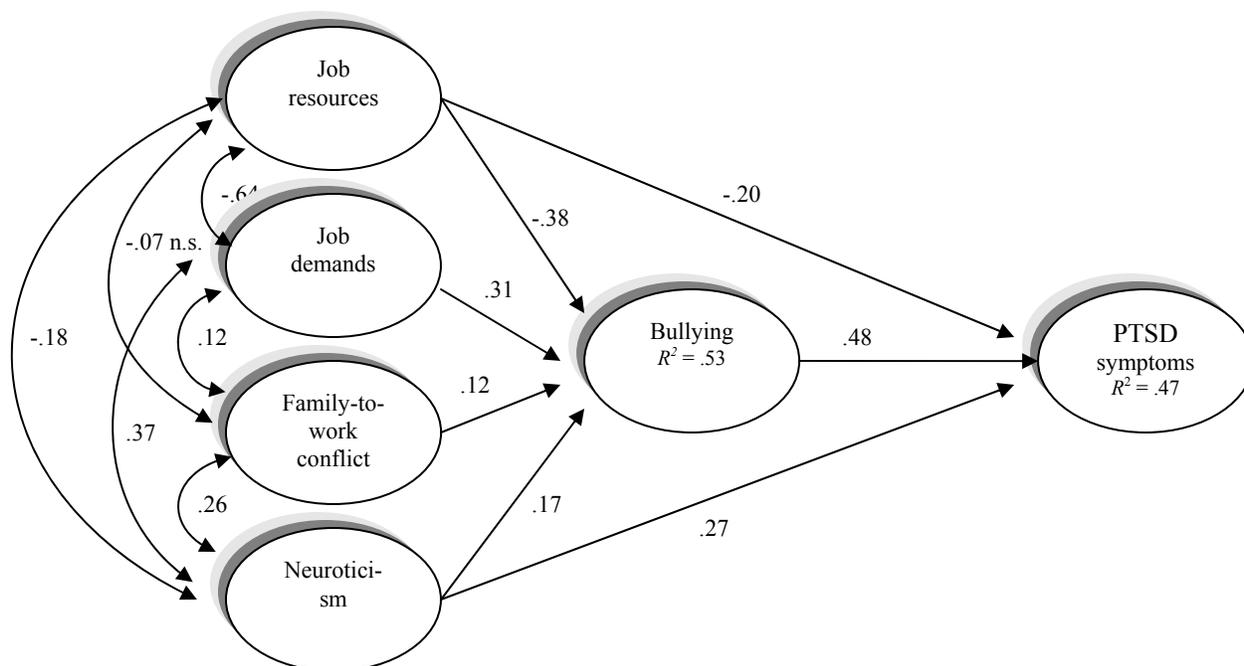
symptoms was also statistically significant ( $\beta = .62$ ;  $p < .05$ ). Before testing the hypothesised mediating effect of bullying on the relationship between psychosocial factors and PTSD symptoms, we sought evidence for a third necessary precondition for testing mediation (Baron & Kenny, 1986): the direct effect of predictors (i.e., job demands, job resources, and family-to-work conflict) on the outcome (i.e., PTSD symptoms). Neuroticism was again included in the model. Model 3 reports the results of this analysis, which indicates that the model fitted quite well. Neuroticism had a statistically significant effect on PTSD symptoms ( $\gamma = .31$ ;  $p < .05$ ). The effects of job demands ( $\gamma = .27$ ;  $p < .05$ ) and of job resources ( $\gamma = -.29$ ;  $p < .05$ ) on PTSD symptoms were also statistically significant; however the effect of family-to-work conflict on PTSD symptoms failed to reach the significance level ( $\gamma = .04$ ; n.s.), implying that bullying does not play a mediating effect for this latter factor. Thus, the preconditions were only met for testing the mediating effect of bullying on the relationship between job demands and job resources, on one hand, and PTSD symptoms on the other hand.

**Table 2.** Results of SEM Analyses.

Model	S-B $\chi^2$	df	GFI	AGFI	RMSEA	NFI	NNFI	CFI
Model 1	143.35	55	.96	.94	.052	.95	.95	.97
Model 2	48.89	17	.98	.96	.054	.99	.99	.99
Model 3	136.74	55	.97	.95	.049	.96	.96	.97
Model 4	238.74	92	.95	.93	.053	.96	.96	.97
Model 5	234.66	91	.95	.93	.053	.96	.96	.97
Model 6	231.00	91	.95	.93	.052	.96	.97	.97
Model 7	77.64	34	.98	.95	.049	.98	.98	.99
Model 8	71.75	33	.98	.95	.046	.98	.98	.99
Model 9	61.35	34	.98	.96	.038	.98	.99	.99
Model 10	57.18	33	.98	.96	.036	.98	.99	.99

*Note.* S-B  $\chi^2$  = Satorra-Bentler scaled  $\chi^2$ . Reported  $\chi^2$  values are statistically significant at  $p < .01$ .

Thus, we compared a full mediation model of bullying – Model 4, in which job demands, job resources, and family-to-work conflict were all related to bullying, which in turn was related to PTSD symptoms, with neuroticism affecting both bullying and PTSD symptoms – with two alternative models. In Model 5 a direct path from job demands to PTSD symptoms was added, while in Model 6 a direct path from job resources to PTSD symptoms was added. Model 4 fitted the data quite well, with all hypothesised effects being statistically significant and in the expected direction. Model 5 obtained a slightly significantly better fit than Model 4 according to the difference in  $\chi^2$  (S-B  $\Delta\chi^2_{M4-M5}(1) = 4.24, p < .05$ ). However, none of the other fit indexes of Model 5 were better than those of Model 4 (Table 2). Furthermore, the direct effect from job demands to PTSD symptoms ( $\gamma = .14$ ) in Model 5 was just at the significance level according to the associated  $t$ -value. Thus, we didn't consider this result as clear evidence for an advantage of Model 5 over Model 4. Model 6, however, more clearly provided a better fit in comparison to Model 4; this was indicated by a statistically significant drop in  $\chi^2$  (S-B  $\Delta\chi^2_{M4-M6}(1) = 10.45, p < .05$ ) and an improvement in some other fit indexes, specifically the RMSEA and the NNFI (see Table 2). Furthermore, the effect from job resources to PTSD symptoms in Model 6 was clearly statistically significant ( $\gamma = -.20; p < .05$ ). Thus, we considered Model 6 as the best fitting model. This model, which is graphically represented in Figure 2, suggests a full mediation of bullying on the relationship between job demands and PTSD symptoms, while a partial mediation of bullying on the relationship between job resources and PTSD symptoms. On the whole these results provide substantial support for Hypothesis 3.



Note. Unless otherwise stated, path is statistically significant at  $p < .05$ . n.s. = not significant.

**Figure 2.** Structural parameter estimates for final model.

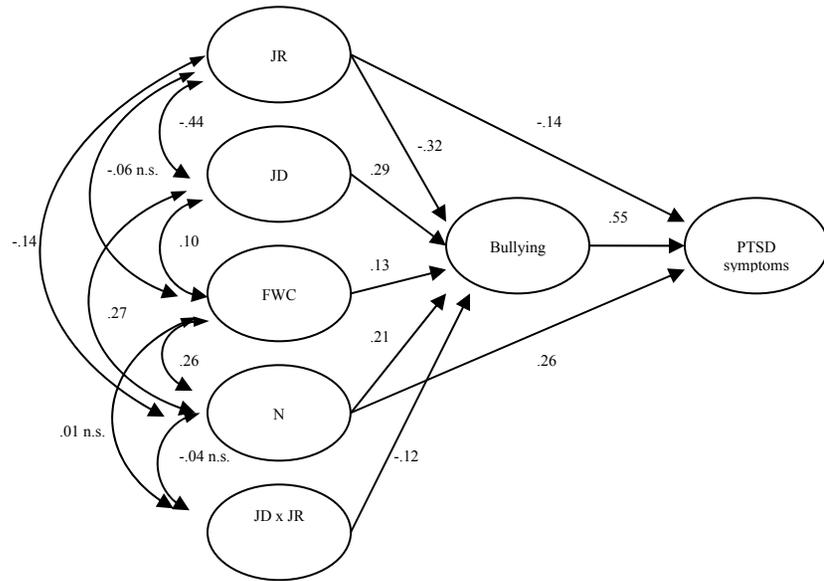
### *MSEM analyses*

To test Hypothesis 4 (about the moderation effect of job resources on the relationship between job demands and workplace bullying, and on the relationship between family-to-work conflict and workplace bullying, respectively), we conducted MSEM by using the technique outlined by Mathieu, Tannenbaum, and Salas (1992) as reported in Cortina et al. (2001). Each exogenous latent factor included in these analyses had only one observed indicator. This was the score obtained by summing and standardizing (i.e., centering) the scores on the variables involved in the definition of the factor. The indicator of the interaction factor was the product of the two scores on the variables defining the interacting factors. The path from each latent exogenous factor to its indicator was fixed by using the square root of the reliability of the indicator. The reliabilities of the job demands, job resources, family-to-work conflict and neuroticism indicators were estimated by means of their Cronbach's alpha. The reliability of the interaction indicator was calculated by taking the product of the reliabilities of the interacting variables plus the square of the latent correlation between them, divided by one plus the square of the same latent correlation just mentioned (Cortina et al., 2001). The error variance of the observed indicator for each exogenous factor was set equal to the product of its variance and one minus its reliability. The correlation between each of the two interacting factors and the factor

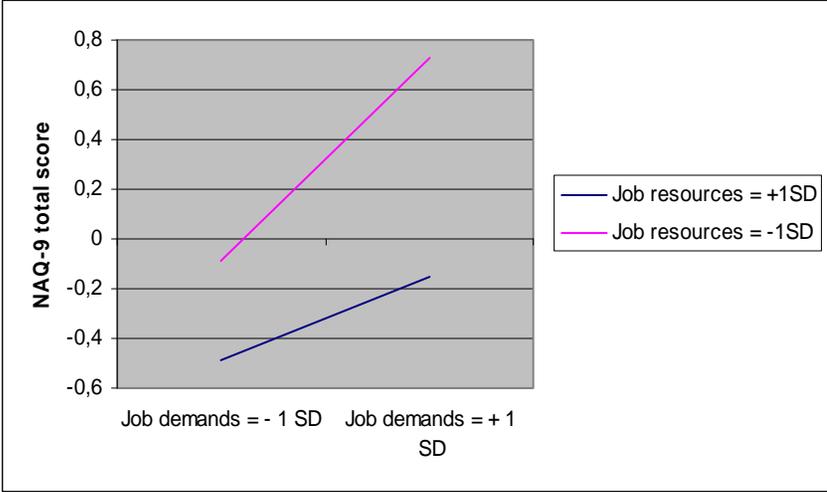
representing the interaction was fixed at zero (Cortina et al., 2001); in all other cases correlations between factors were freely estimated. A significant interaction effect is supported when the path coefficient from the latent interaction factor to the latent endogenous factor is statistically significant and the model including this path fits significantly better, as evaluated by a difference in the  $\chi^2$  statistic, than the model which does not include this same path.

Each of the two MSEM analyses included five exogenous latent factors (neuroticism, family-to-work conflict, job demands, job resources, and the factor representing the interaction term) and two endogenous latent factors (bullying and PTSD, each measured by the respective three observed indicators). Table 2, Models 7-8, report the results of MSEM testing for the moderation of job resources on the relationship between job demands and workplace bullying. A comparison between the two models, which differed for the inclusion in Model 8 of a direct path from the interaction factor to the bullying factor, indicated that the difference in their  $\chi^2$  value was statistically significant (S-B  $\Delta\chi^2_{M7-M8} (1) = 5.21; p < .05$ ). Model 8 reported also a lower RMSEA, which confirmed a slight improvement in comparison to the preceding model. The direct path from the interaction factor to the bullying factor in Model 8 (see Figure 3a) came out as statistically significant and in the expected direction ( $\gamma = -.12, p < .05$ ). Simple slope analysis (Figure 3b) confirmed a clear trend for a buffering effect of job resources on the relationship between job demands and workplace bullying.

Table 1, Models 9-10, reports the results of MSEM testing for the moderation of job resources on the relationship between family-to-work conflict and workplace bullying. A comparison between the models, which differed for the inclusion in Model 10 of a direct path from the interaction factor to the bullying factor, indicated that the difference in their  $\chi^2$  value was statistically significant (S-B  $\Delta\chi^2_{M9-M10} (1) = 4.14 p < .05$ ). Model 10 also reported a somewhat lower value at the RMSEA as compared to Model 9. The path from the interaction factor to the bullying factor in Model 10 (see Figure 4a) came out as statistically significant and in the expected direction ( $\gamma = -.10, p < .05$ ). Simple slope analysis (Figure 4b) confirmed a buffering effect of job resources on the relationship between family-to-work conflict and workplace bullying: when job resources were high, there was a weaker relationship between family-to-work conflict and bullying than when job resources were low. Overall these results provide support to Hypothesis 4.



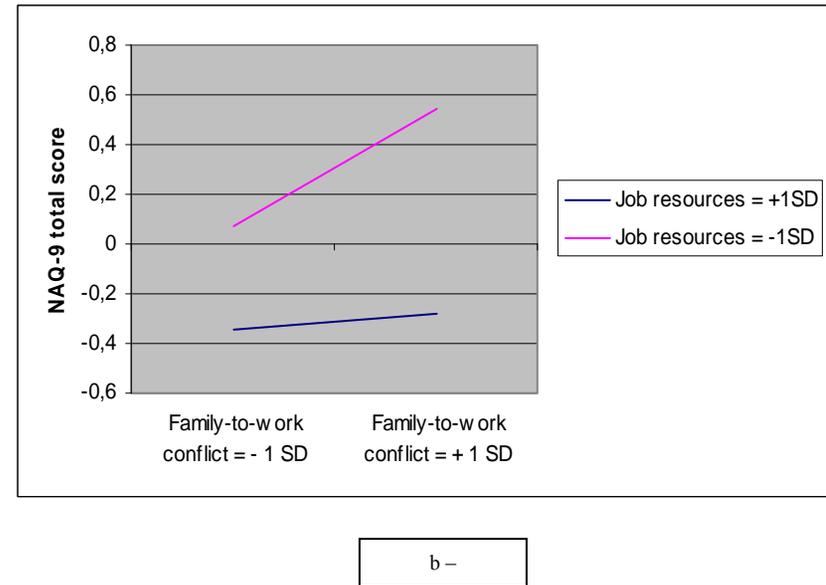
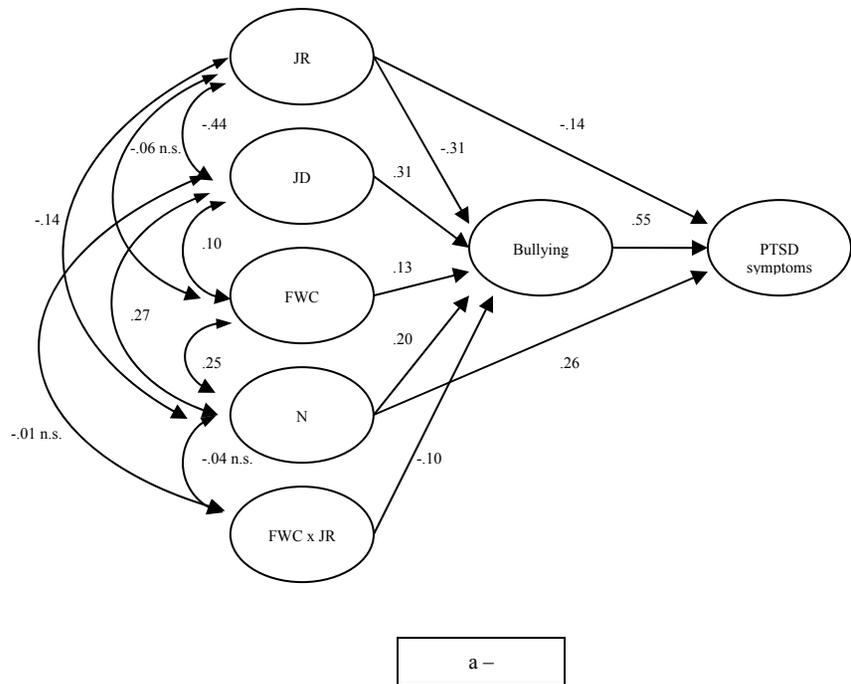
a -



b -

Note. JR=job resources; JD=job demands; N=neuroticism; FWC=family-to-work conflict; JDxJR = job demands x job resources. Unless otherwise stated, path is statistically significant at  $p < .05$ . n.s. = not significant.

**Figure 3.** Moderation of job resources on the relationship between job demands and workplace bullying (a – moderation model; b – simple slope analysis).



Note. JR = job resources; JD = job demands; N = neuroticism; FWC = family-to-work conflict; FWC x JR = family-to-work conflict x job resources. Unless otherwise stated, path is statistically significant at  $p < .05$ . n.s. = not significant.

**Figure 4.** Moderation of job resources on the relationship between family-to-work conflict and bullying (a – moderation model; b – simple slope analysis).

## Discussion

The current study was designed with the main purpose of testing a comprehensive model of bullying including three unique aspects which were not given due consideration during previous research, namely the integration of work environmental and personality factors as potential preconditions of bullying; examination of both traditional stressors and buffering resources; and the inclusion of post traumatic stress disorder as a possible consequence of bullying-related victimization.

### *Main study results*

First of all, results confirmed that neuroticism directly influenced the frequency of reported negative behaviors at work which define crucial aspects of bullying, as well as the intensity of traumatic stress reactions which are related to bullying. Specifically, the higher the level of neuroticism, of which one of the main characteristics is emotional instability and moodiness (Lowman, 1993; Warr, 2007), the higher the frequency of reported bullying behaviors and of PTSD symptoms. Thus, neuroticism is an important variable as far as bullying and its consequences are concerned. This result is in line with the view that there may be differences between victims and non victims of bullying that precede and perhaps contribute to the occurrence of the phenomenon (Zapf & Einarsen, 2005), which has also been suggested by clinical studies in this area (Balducci et al., 2009; Brousse et al., 2008), in which a recurrent personality pattern mainly of the neurotic and paranoid type was found among victims of extreme bullying, a pattern that was stable over time. Individuals high in neuroticism, perhaps due to the difficulty they experience in dealing with criticisms, and their suspicious and anxious nature, may be more likely to be involved in conflicts at work which may escalate into bullying. Research on personality disorders at work (Lowman, 1993) suggests that individuals with personality problems typically have little understanding of their impact on others and may act in ways that others find objectionable, when not offensive. Their main problem seems to be an inability to interact effectively with the outside world (Lowman, 1993): they may for example behave in ways aimed at satisfying their immediate needs too directly, at the expense of the needs of others, which may provoke understandable negative reactions in the latter. They also typically encounter problems with authority, which may imply that they perceive as bullying legitimate requests made by their supervisor. Of course neuroticism is only one way in which

personality may directly be related to bullying, with other traits such as low conscientiousness (Bowling & Beehr, 2006) being potentially relevant in this respect.

However, in line with the proposed Hypothesis 1, the results of the present study strongly suggest that personality is not a sufficient factor for an understanding of workplace bullying. A reformulation and test of the work environment hypothesis (Hauge et al., 2007; Leymann, 1996; Skogstad et al., 2007) according to the principles of the job demands-resources model of work stress (e.g. Bakker & Demerouti, 2007) supported the view that psychosocial characteristics of the job (i.e. job demands and job resources) are directly related to bullying after neuroticism has been controlled for. We defined job demands in terms of workload, role conflict, and a *laissez-faire* leadership style – three factors that have been found to be related to bullying (Hauge et al., 2007; Skogstad et al., 2007) and that, quite importantly, have been indicated in preliminary interviews with employees and data analysis as important dimensions of job stress in the studied organization. According to the job demands-resources model (Bakker & Demerouti, 2007), job demands have the potential to activate negative arousing experiences at work and may, in the longer run, induce health impairment process (Schaufeli, Bakker, Van Rhenen, in press). Workplace bullying could be an interpersonal correlate of this process, in that negative arousing experiences at work and stress reactions may predispose individuals to involvement in interpersonal conflicts which may then escalate into bullying.

In line with this interpretation, we also found that a job resources factor made up of salary promotion prospects, co-worker support and decision authority – three important helping elements at work in general, and in the studied organization in particular – was negatively related to bullying. This is to be expected, since the investigated resources provide protection from the arousing effect of job stressors (e.g. Siegrist & Theorell, 2006) and thus prevent individuals' experiencing the hypothesised preconditions of bullying. Furthermore, the interaction effect between job demands and job resources in explaining bullying was significant, and it clearly illustrated the buffering effect of job resources on the potential of job demands to lead to bullying. The effect of the interaction was small, explaining 2% variance more in the bullying construct. However this result should not be underestimated, in view of that fact that the power to detect interactions remains a problem in observational studies, as has been explained by Cohen, Cohen, Aiken & West (2003, p. 297).

A further result which emerged in the present study, which is in line with the work environment hypothesis of bullying, is that family-to-work conflict – a form of inter-role conflict

arising when family responsibilities interfere with work responsibilities – was also associated with the reported level of bullying. Research has shown (e.g. Frone, Russel & Cooper, 1992) that family demands, by keeping an individual from going to work, from leaving home on time and from putting effort into accomplishing work tasks, may lead to work-related absenteeism and tardiness, may deteriorate work performance, and may generate work dissatisfaction and distress. Thus, it may well be that exposure to family-to-work conflict, by deteriorating work performance and generating distress creates the conditions for conflicting relationships with co-workers or the supervisor and thus for the escalation of bullying. For example, co-workers may be forced to make an extra effort at work when the worker exposed to family-to-work conflict is absent, and may then retaliate against that worker even by directly bullying him or her. This interpretation fits well with the emerged moderating effect of job resources on the relationship between family-to-work conflict and bullying, in that, when responsibilities at home interfere with responsibilities at work, it may be crucial to know that one can still count on the help of co-workers, or that one has the authority to rearrange priorities at work to abate distress, thus avoiding deleterious friction with co-workers and the supervisor. We believe that the relationship between family-to-work conflict and bullying is worthy of further attention in future research in order to better understand the dynamics leading to bullying. This is because, in the modern world of work, we find an increasing proportion of working women, and also high divorce rates, and families facing the simultaneous demands of child care and care of the elderly (Frone, 2003). If bullying is indeed an interpersonal correlate of job stress, all this may determine a high and increasing relevance of family-to-work conflict as a potential antecedent of bullying.

In line with the second hypothesis formulated, we also found that workplace bullying was strongly related to core symptoms of PTSD as defined by the DSM IV-TR (APA, 2000). This finding is an original contribution for research in this area, since previous studies on the relationship between bullying and PTSD (Balducci et al., 2009; Leymann & Gustafsson, 1996; Mikkelsen & Einarsen, 2002; Nielsen et al., 2008) only focused on non-organizational samples (e.g. clinical samples of victims) and did not always (e.g. Balducci et al., 2009; Nielsen et al., 2008) include a measure of the disorder based on the DSM IV-TR criteria, which may constitute a problem from a validity perspective (Foa, Cashman, Jaycox & Perry, 1997). Furthermore, a comprehensive model including a path from working conditions to bullying and from bullying to PTSD symptomatology, where bullying plays a mediating role between working conditions and extreme stress reactions, has not been explored in previous research. Our analyses provided

supportive evidence for this path. We do not enter here into the debate on the appropriateness of PTSD diagnosis as a consequence of bullying, an issue that has been well tackled elsewhere (e.g. Mikkelsen & Einarsen, 2002). However, our results strongly support Leymann's (1996) idea that interpersonal conflicts at work that are related to distressing working conditions may lead to bullying and from bullying to traumatic stress symptomatology, the same symptoms classically observed as a consequence of overwhelming traumatic events. In separate analyses (not reported here), we examined our data on this issue in more detail. Specifically, on the basis of an item included in the questionnaire, we split our sample into two sub-groups, differentiating workers who over the last year experienced ( $n = 155$ ) *versus* didn't experience ( $n = 627$ ) a major traumatic event in the personal or family sphere – an event (e.g. death of the spouse) scoring higher than 50 on the Social Readjustment Rating Scale (Holmes & Rahe, 1967) – and refitted our comprehensive model of bullying into the latter sub-group. The results remained the same, confirming the robustness of the model. This strengthens the view of Leymann (Leymann & Gustafsson, 1996) that PTSD may indeed be a typical reaction to bullying.

### *Study limitations*

The most important limitation of the present research is that it was based on a cross-sectional design, which means that we cannot draw any conclusion regarding causal relationships between variables. Evidence from longitudinal studies in the work stress area (e.g. Hakanen, Schaufeli & Ahola, 2008; Schaufeli, Bakker & Van Rhenen, in press) does show that organizational factors such as workload, autonomy and social support have causal effects on health outcomes, so the path from job demands to PTSD symptoms through bullying is plausible. Also, this path is in line with robust aggression theories (Neumann & Baron, 2003; 2005), according to which distressing environmental situations may generate in individuals critical internal states which are the immediate preconditions of aggressive behavior and interpersonal conflicts leading to compromised health. Furthermore, it seems more plausible that family-to-work conflict (i.e. the interference of family responsibilities on work responsibilities) determines interpersonal conflict/bullying at work than the reverse, however we cannot exclude that bullying actions (e.g. unmanageable deadlines, pressure to do extra-work) determine work-to-family conflict (which was not measured in the present research) and that the latter generates family-to-work conflict, which thus comes out as related to bullying. Much caution should also be taken in considering the implied causal flow between job demands and job resources, and bullying, since

it may well be that bullying promotes both an increase in job demands and a decrease in job resources, while at the same time leading to PTSD symptoms. As far as the relationship between neuroticism and bullying is concerned, even if our measure was a trait measure of neuroticism we cannot exclude that bullying is able to change even stable personality traits, as it was suggested by Leymann (e.g. Leymann, 1990a; Leymann & Gustafsson, 1996). All this means that there is a dramatic need for longitudinal research in this area.

A second limitation of the present study is that all the data are self-reported, which may undermine the reliability of the obtained results due to common method variance. However, it is also true that employees may be in the best position to evaluate their work environment and their reactions to it, and that other methods, such as observer ratings of working conditions, may be equally affected by bias (Chan, 2009; Spector, 2006). For example, in the case of bullying, peer nominations of bullying (Coyne et al., 2003) may only capture bullying behaviors that are overt in nature, which may be characteristics of highly escalated bullying, but may not capture more subtle forms of bullying such as the withdrawing of information that affects performance.

A third important limitation of the present study is its lack of generalizability. We have focused on employees with non-managerial jobs in a public administration agency in Italy. Hence the first problem is generalizability to employees of the private sector. Also, it is important to underline that in considering generalizability, we do not focus on the generalizability of the effect of the studied job demands and job resources on bullying, since in other work organizations other job stressors and resources could trigger, or provide protection from, interpersonal conflicts and bullying. In other words there may be a degree of context specificity in the development of bullying. Instead, we consider the generalizability of the process leading to bullying implied by the work environment hypothesis (e.g. Hauge et al., 2007; Leymann, 1996), and as framed in terms of the job demands-resources model (Bakker & Demerouti, 2007): if bullying is indeed a stress-related outcome, only those work-related stressors most critical in the studied organization should significantly affect bullying. We believe that this idea could receive further attention in future research.

#### *Final considerations and future directions*

To summarize, the present study contributes to the current scientific debate on workplace bullying by contrasting two different hypotheses which have been put forward to explain the occurrence of the phenomenon. It was shown that the personality hypothesis (Zapf & Einarsen

2005) holds as an explanation for the occurrence of bullying, but that the stronger potential antecedent of the phenomenon seems to be the work environment, and more specifically its most demanding and protective elements, including their interaction. This supports the idea that work-related environmental factors (Einarsen, 2000; Hauge et al., 2007), including family-to-work conflict, are the main antecedent of bullying and that they operate independently of the victim's personality. If replicated in future research, these results suggest possible preventive strategies against bullying – an area in which there is a strong need of development given the high prevalence of the phenomenon in modern organizations (European Agency for Health and Safety at Work, 2007). Specifically, the present results suggest that bullying prevention may not only be based on organizational policies that act as a deterrent against bullying. Organizational policies are important, of course. However, they do not normally take into consideration the causes of the phenomenon and cannot be considered primary prevention, which is the preferred way toward prevention. As an alternative or in addition to organizational policies, management interventions aiming at controlling job demands (e.g. role stressors) and providing job resources (e.g. decision latitude) – in other words, aiming at maintaining within acceptable limits the experience of work-related stress – seems also to be useful for preventing the occurrence of bullying.

## Chapter 5

### **The stressor-emotion hypothesis of counterproductive work behavior: Testing a mediation/moderation model of abusive behavior at work**

#### Abstract

Counterproductive work behavior (CWB) consists of volitional acts that harm or intend to harm organizations and their stakeholders. The stressor-emotion model of CWB (Spector & Fox, 2005) postulates that CWB is a reaction to negative emotional experiences at work, which are activated by distressing working conditions. The robustness of the model has been rarely addressed empirically and studies have often only explored individual linkages between the different phenomena involved. In the analysis reported here, we used structural equation modelling to test an integrated mediation/moderation model of abusive behavior at work, in which personality influences were also taken in consideration. The results supported the mediational role of job-related negative affect in the relationships between job demands (role stressors and *laissez-faire* leadership style) and job resources (co-worker support, autonomy, and salary/promotion prospects), on the one hand, and abusive behavior on the other. Moderation analysis yielded modest evidence for a buffering effect of job resources, with only autonomy offsetting the impact of role conflict in the process leading to abuse. By contrast, substantial evidence emerged for a potentiating effect of neuroticism in the process that leads from job demands to abusive behavior.

Keywords: abusive behavior at work, stressor-emotion model, job-related affect

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## Introduction

Although there has been a recent trend in work/organizational and occupational health psychology to focus on positive organizational behavior (Bakker & Schaufeli, 2008; Schaufeli & Salanova, 2008), its opposite, i.e. negative and destructive behavior, is still a widespread phenomenon in modern organizations. Researchers have often studied the latter form of behavior by referring to it with the term ‘counterproductive work behavior’ (CWB; Fox & Spector, 2005; Sackett, 2002; Sackett, & DeVore, 2001), which consists of volitional acts that harm or intend to harm organizations and their stakeholders. The most prominent form of CWB is physical violence (Di Martino, Hoel & Cooper, 2003; LeBlanc & Barling, 2005). However, it may take the form of much less striking behaviors, such as theft of objects belonging to the employer or colleagues, organizational withdrawal, acts of abuse and hostility towards others, and production deviance (Spector, Fox, Penney, Bruursema, Goh et al., 2006). All of these may have high costs for organizations and the employees targeted.

Much research in this area has taken a personnel psychology perspective and has sought to identify dispositional variables that may predict CWB, so that organizations can avoid hiring employees with counterproductive tendencies. Personality factors have been repeatedly shown to possess utility in this domain, particularly conscientiousness, agreeableness and emotional stability/neuroticism (Berry, Ones, & Sackett, 2007; Hershcovis, Turner, Barling, Arnold, Dupré et al., 2007; Ones & Viswesvaran, 2001; Salgado, 2002). Other traits found to be related to CWB are self-control (Marcus & Schuler, 2004) and even cognitive ability (Dilchert, Ones, Davis, & Rostow, 2007). More recently, an occupational health psychology perspective has emerged, in which CWB is seen as a behavioral reaction to job stress (Fox, Spector, & Miles, 2001; Fox, Spector, & Rodopman, 2004). According to this hypothesis, job-related negative emotions elicited by working conditions are the factors responsible for CWB. Thus, from this perspective, the emphasis is on the environmental conditions that may trigger the process leading to CWB. However, evidence in favour of the stressor-emotion hypothesis is still sparse: for example, a comprehensive test of the hypothesis have never been attempted.

The analysis described by the present study was designed to contribute to research in this area by pursuing two main objectives. The first was to test the robustness of the stressor-emotion hypothesis of CWB (Spector & Fox, 2005) with the focus on the mediational role of job-related affect. The second aim was to integrate the personnel psychology perspective of CWB with the

stressor-emotion hypothesis and test the added value of a person-environment interactionist explanation of CWB.

*The stressor-emotion model of counterproductive work behavior*

The stressor-emotion model of CWB proposed by Spector and Fox (2005) builds upon the frustration aggression hypothesis (Dollard, Doob, Miller, Mowrer, & Sears, 1939) and integrates concepts from human aggression theory (e.g., Berkowitz, 1989; Neuman & Baron, 2003, 2005) with concepts from stress theory (Lazarus 2006; Lazarus & Folkman, 1984). The model postulates a causal chain leading from objective organizational stressors to negative emotions, through the appraisal process, to behavioral reactions in the form of CWB. Thus, the proximal antecedents of CWB are work-related emotionally critical internal states (see also Neuman & Baron, 2003) – mainly anger, but also anxiety, envy, etc. – while the distal antecedents are organizational stressors that elicit such negative internal states, such as role conflict and role ambiguity. An important element in this process is control over the environmental condition that causes the emotional response, with low control increasing the likelihood of negative emotional experiences and/or negative behavioral reactions. The role of personality is also acknowledged, since, given the same conditions, not all individuals will react in the same manner (Spector & Fox, 2005). Thus, according to the stressor emotion model, CWB is an emotion regulation strategy: behavioral reactions are a way to enact and discharge negative emotions at work. A similar interpretation of CWB is also put forward by other authors (e.g. Bechtoldt, Welk, Hartig, & Zapf, 2007).

In line with the stressor-emotion model, research has shown that perceived stressors are indeed related to CWB (Aquino, Lewis, & Bradfield, 1999; Chen & Spector, 1992; Fox, Spector & Miles, 2001; Penney & Spector, 2005; Skarlicki & Folger, 1997; Storms & Spector, 1987). On reviewing the literature in this area, Spector and Fox (2005) concluded that, although the number of stressors studied in relation to CWB is rather limited, interpersonal conflict, organizational constraints, role conflict and role ambiguity seem to be important, while there is more contradictory evidence as regards organizational injustice. In parallel with these findings, research has also shown that perceived stressors usually associated with CWB are related to the experience of negative emotions such as anger and anxiety (Spector & Goh, 2001).

Despite this encouraging evidence in favour of the stressor-emotion model of CWB, most studies in this area have only tested single parts of the model, and in most cases they have

adopted a piecemeal approach to identifying the organizational and/or individual antecedents of CWB. Moreover, evidence in favour of the mediational role of job-related affect in the process leading to CWB is still scarce, with only few studies (e.g. Fox et al., 2001) providing some support for this mediation. Moderation of job control in the relationship between job stressors and CWB has also rarely been addressed, with Fox et al. (2001) even finding evidence in the direction opposite from that hypothesised, with autonomy strengthening the relationship between interpersonal conflict at work and CWB. Furthermore, if CWB is a stress reaction, perhaps other job resources such as social support may moderate the stressor-CWB relationship. In brief, empirical evidence in this area is still scarce and there is a need for further research.

A further point to consider is that more recent research on CWB (e.g. Bechtoldt et al., 2007; Marcus & Schuler, 2004) has often used an overall measure of the phenomenon, while evidence is emerging that the different types of CWB may have at least partially different nomological nets. For example, Spector et al. (2006) found that theft was unrelated to the work-related negative emotions investigated, and that it was only modestly related to organizational stressors such as interpersonal conflict, distributive and interpersonal justice. By contrast, abuse and production deviance were much more strongly associated with all these variables. Spector et al. (2006) concluded by suggesting the adoption of a more fine-grained approach to the study of CWB. Evidence in line with these findings has also been furnished by Roscigno & Hodson (2004) and a recent meta-analysis by Berry et al. (2007), which supported the separability of interpersonal deviance and organizational deviance (Bennet & Robinson, 2000) in terms of correlates.

#### *Focus on abusive behavior at work*

In line with this call to take a more fine grained approach to the study of CWB, the research reported by this study focused on a specific facet of the phenomenon, namely abusive behavior. This form of workplace deviance consists of aggressive behaviors directed towards co-workers or others, that may provoke extreme stress reaction in the target, if not direct physical harm. Examples of this behavior are: being nasty or rude to a co-worker, verbally abusing someone at work, threatening someone at work with violence, hitting or pushing someone at work, etc. (Spector et al., 2006). These phenomena are increasingly prevalent, and they cause concern for organizations and society as a whole (Di Martino et al., 2003; LeBlanc & Barling, 2005). At the European level, for example, 6% of the workers of the EU member states report

that they have been exposed to physical violence during work in the past year and 5% report that they have been exposed to workplace bullying (European Foundation, 2007). Relationships between work stressors and abuse have already been demonstrated (e.g. Fox & Spector, 1999). Much research on abuse, however, has taken a target perspective and has investigated the phenomenon of workplace bullying – also called emotional abuse at work (Einarsen, Hoel, Zapf & Cooper, 2003) – which includes both minor and extreme forms of abuse. From this perspective there is evidence that workplace bullying develops in work environments characterized by poor working conditions such as role conflict and role ambiguity, organizational constraints and inadequate managerial practices (Bowling & Beehr, 2006; Hauge, Skogstad & Einarsen, 2007; Skogstad, Einarsen, Torsheim, Aasland, & Hetland, 2007), which is in line with evidence from research taking an actor perspective and investigating abusive behavior (Spector & Fox, 2005).

### *Study hypotheses*

In our research we built upon the stressor-emotion model proposed by Spector and Fox (2005) and tested an overall mediation/moderation model of abusive behavior at work, integrating job characteristics, personality and job-related affect. Drawing on recent advances in work stress theory and research (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004), we operationalized the effect of work environmental factors on abuse in terms of job demands and job resources. Job demands refer to aspects of the job (e.g. physical and psychological demands) that require physical or mental effort and that therefore may generate negative emotional experiences, which in turn may trigger abusive behavior. Job resources, on the other hand, are those aspects (e.g. autonomy and social support) that are functional to achieving work goals and/or to reducing job demands, and that may protect individual health and promote well-being. Thus, job resources may perform the buffering effect (e.g. Bakker, Demerouti, Euwema, 2005; Xanthopoulou, Bakker, Dollard, Demerouti, Schaufeli, Taris & Schreurs, 2007), meaning that they may attenuate the power of job demands to lead to abusive behavior. By differentiating work characteristics in job demands and job resources and by including not only job control as a potential moderating variable, but also other buffering resources, we expanded the stressor-emotion model of CWB proposed by Spector and Fox (2005).

As far as personal factors are concerned, these may constitute a risk element for abusive behavior. We focused on neuroticism (otherwise termed ‘emotional instability’), which is among the most important personality correlates of CWB (Berry et al., 2007; Hershcovis et al., 2007)

and which is usually taken to include anxiety, depression, hostility and moodiness (for a recent review see Warr, 2007). Thus, neuroticism may be a particularly critical disposition to consider in a stressor-emotion approach to CWB. In the analyses, we added neuroticism as a second step to the tested stressor-emotion model of abuse. By this means we evaluated whether the hypothesised relationships between job characteristics, job-related negative affect and abuse were robust and significant even after introducing this critical personality variable. Furthermore, we were also interested in studying the possible strengthening effect of neuroticism in the process leading to abuse. As pointed out by Hershcovis et al. (2007), the fact that both individual and situational variables have been found to predict workplace aggression suggests that an interactionist approach to the phenomenon may be the best one. However, studies in which interaction effects between environmental and personality factors in predicting CWB are analysed are still in the minority (some exceptions are Colbert, Mount, Harter, Witt, & Barrick, 2004; Fox et al., 2001). Thus, further research may prove useful in this area (Hershcovis et al., 2007).

In light of these considerations, we first tested the following three hypotheses.

Hypothesis 1: Job demands are positively associated with abusive behavior.

Hypothesis 2: Job resources are negatively associated with abusive behavior.

Hypothesis 3: Job-related negative affect mediates the effect of job demands and job resources on abusive behavior.

As for the buffering effect of job resources and the potentiating effect of neuroticism in the process leading to abuse, these effects may occur at different stages of the stressor-abuse relationship, more particularly at the level of perception by altering the appraisal process, or at the level of the response by modifying the consequences of the appraisal. According to the mediation model of abuse proposed in the present study, in which negative affect play a critical role in triggering abuse, we postulated that job resources and neuroticism could impact on the potential of job demands to arouse job-related negative affect in the reaction that leads to abuse. We thus hypothesised that:

Hypothesis 4: Job resources attenuate the potential of job demands to lead to abuse by moderating the job demands–job-related negative affect relationship.

Hypothesis 5: Neuroticism enhances the potential of job demands to lead to abuse by potentiating the job demands–job-related negative affect relationship.

## Method

### *Participants*

Data were collected as part of a psychosocial risk assessment conducted from April to October 2007 in a large public organization in Italy. Workers (prevalently white-collars) in non-managerial positions were requested to fill in a structured, anonymous questionnaire investigating a number of psychosocial aspects of work and health outcomes. The administration took place during working hours, separately for each department of the organization, at a time agreed in advance with management and workers representatives. Participation was on a voluntary basis. At the end of data collection, questionnaires from 818 employees (response rate 58,8%) were available, of whom 50.3% were females. Age of participants was distributed as follows: 0.8% were 20-29 years, 21% were 30-39, 42.7% were 40-49, 32.1% were 50-59 and 3.4% were 60 or more. Most of participants (97.9%) had a permanent job contract.

### *Instruments*

*Abusive behavior* at work was evaluated by using a scale of twelve items derived from the Counterproductive Work Behavior Checklist (CWB-C; Spector et al., 2006). The used scale investigated the frequency with which, in the last 12 months, the respondent carried out a number of negative behaviors such as 'Blamed someone at work for error you made'. Responses to items were given on a 5-point scale ranging from 1 (Never) to 5 (Daily). Since the last three response categories of the scale [i.e., '1-2 times per month' (3), '1-2 times per week' (4), and 'daily' (5)] were almost never endorsed, we merged them in a single category. We obtained a Cronbach's alpha (alpha, from now on) of .69 for this scale. We randomly derived two 6-item parcels from the overall scale, which were used as the observed indicators for the hypothesised underlying dimension.

*Job-related negative affect* was measured by using 6 items taken from a reduced version (Schaufeli & van Rhenen, 2006) of the Job-related Affective Well-being Scale (JAWS; Van Katwyk, Fox, Spector, & Kelloway, 2000). This tool investigates the experience, in the last 30 days, of a number of positive and negative affective states in connection to one's own work, with responses given on a 5-point scale ranging from 1 (Never) to 5 (Very often). We obtained an alpha of .85 for the negative affect component of the JAWS. In the analyses we operationalized job-related negative affect in terms of two 3-item sub-scales, investigating low

pleasure/high arousal (LPHA) affective states (e.g., anger), and low pleasure/low arousal (LPLA) affective states (e.g., discouragement).

*Job demands.* We operationalized job demands by using three observed indicators: role conflict, role ambiguity, and a *laissez-faire* leadership style. Role conflict was measured by using six items (e.g., ‘I receive incompatible requests from two or more people’) from the role conflict scale developed by Rizzo, House, and Lirtzman (1970). Responses ranged from 1 (‘Entirely true’) to 5 (‘Entirely false’), with items being reversed coded before computing the scale total. Alpha was .76 for this scale. Role ambiguity was measured by using 6 items from a scale again developed by Rizzo et al. (1970), with an example item being: ‘I know what my responsibilities are’. Response format was the same as for the role conflict scale. Alpha was .78. *Laissez-faire* leadership was measured by using six items (e.g., ‘My supervisor has avoided telling me how to perform my job’), with four items being derived from the Multifactor Leadership Questionnaire (Bass & Avolio, 1990) and two items being developed for the present study on the basis of a definition of *laissez-faire* leadership (Eagly, Johannesen-Schmidt, & Engen, 2003). Responses varied from 1 (‘Disagree strongly’) to 5 (‘Agree strongly’). A preliminary principal component analysis run on these six items indicated the presence of only one factor, accounting for 64.2% of the total variance. Alpha was .90.

*Job resources.* We operationalized job resources in terms of salary/promotion prospects, co-worker support and autonomy. Salary/promotion prospects were explored by four items (e.g., ‘Considering all my efforts and achievements, my job promotion prospects are adequate’) making up the Salary/promotion scale from the Effort-Reward Imbalance questionnaire (Siegrist, Starke, Chandola, Godin, & Marmot et al., 2004). Responses varied from 1 (Yes) to 5 (No, and I’m very disturbed by this), with items being reversed coded before computing the scale total. Alpha was .81. Co-worker support was measured by four items (e.g., ‘My co-workers are friendly with me’) taken from the Job Content Questionnaire (Karasek, Brisson, Kawakami, Houtman, Bongers et al., 1998), with responses varying from 1 (‘Disagree, strongly’) to 4 (‘Agree, strongly’). Alpha was .73. Autonomy (e.g., ‘I have a say in the organization of my work’) was measured by using a decision authority scale (Karasek et al., 1998), with the same response options as for the co-worker support scale; alpha was .69 for this measure.

*Personality.* Neuroticism was measured by using a 9-item scale (e.g., “I get upset easily”) derived from a public domain big-five personality inventory included in the International Personality Item Pool (IPIP; e.g., Goldberg, 1999). Responses to items varied from 1 (‘Not at

all') to 5 ('Completely'). Alpha was .90. For the analyses we randomly derived two parcels from the overall scale, one parcel made by four items and the other made by five items.

### *Analytical strategy*

To test our hypotheses we conducted a series of structural equation modelling analyses by using LISREL 8.71 (Jöreskog & Sörbom, 1996). In order to test for the mediating effect of job-related negative affect on the relationship between job demands and job resources, on the one hand, and abusive behavior on the other (Hypothesis 3), we followed the procedure described by Baron and Kenny (1986). To test for the interaction effects between job demands and job resources and between job demands and neuroticism on job-related negative affect (Hypotheses 4 and 5), we used moderated structural equation modelling (MSEM; Cortina, Chen, & Dunlap, 2001). The MSEM models included three exogenous latent factors representing the independent variables of interest and their interaction, and two endogenous latent factors representing job-related negative affect and abusive behavior (for more details see below).

The fit of the structural equation models was evaluated by using the  $\chi^2$  statistic and a variety of other more practical fit indices (Byrne, 1998; Tabachnick & Fidell, 2007). Models showing values of up to .08 at the RMSEA (Jöreskog & Sörbom, 1996) and values of .90 or higher for the NFI, NNFI and CFI (Bentler, 1992) are usually considered as acceptable. Models showing values of up to .06 at the RMSEA and values close to .95 at the NFI, NNFI and CFI are considered as having a good fit (Hu & Bentler, 1999). Since a number of variables exhibited a skewed distribution, with abusive behavior showing a very positive skewed distribution, we opted for the robust maximum likelihood (RML) estimation method to run all SEM analyses (Olsson, Foss, Troye, & Howell, 2000). Thus we evaluated the tested models by means of the Satorra and Bentler (S-B; 2001) scaled chi-square statistic.

## **Results**

### *Descriptives*

Descriptive statistics of the study variables including their intercorrelations (Pearson's  $r$ ) are presented in Table 1.

**Table 1.** Means, standard deviations, and correlations of study variables.

	<i>M (SD)</i>	1	2	3	4	5	6	7	8	9	10	11	12
1- Abuse_parcel1	1.18 (0.23)	–											
2- Abuse_parcel2	1.15 (0.20)	.53	–										
3- LPHA affect	2.40 (0.97)	.18	.25	–									
4- LPLA affect	2.46 (1.03)	.16	.20	.73	–								
5- Role conflict	2.44 (0.91)	.17	.19	.37	.35	–							
6- Role ambiguity	2.49 (0.79)	.14	.08*	.37	.35	.28	–						
7- <i>Laissez-faire</i> leadership	2.84 (0.90)	.17	.18	.25	.25	.33	.32	–					
8- Autonomy	2.69 (0.52)	.03 <sup>†</sup>	-.05 <sup>†</sup>	-.18	-.11	-.14	-.23	-.11	–				
9- Salary/promotion prospects	3.28 (1.14)	-.07 <sup>†</sup>	-.14	-.40	-.36	-.26	-.34	-.27	.25	–			
10- Cow-worker support	2.78 (0.41)	-.05 <sup>†</sup>	-.12	-.24	-.21	-.16	-.17	-.20	.16	.28	–		
11- Neuroticism_parcel1	2.12(0.85)	.17	.15	.43	.46	.18	.34	.10	-.15	-.14	-.10	–	
12- Neuroticism_parcel2	2.14(0.86)	.15	.15	.38	.36	.18	.25	.06 <sup>†</sup>	-.12	-.09	-.09	.72	–

*Note.* LPHA = low pleasure-high arousal. LPLA = low pleasure-low arousal. Unless otherwise stated correlation is statistically significant at  $p < .01$ ; \*  $p < .05$ ; <sup>†</sup> n.s.

The two indicators of abusive behavior show positive statistically significant correlations with all the job demands included, although correlations remain relatively low, ranging from  $r = .08$  to  $r = .19$ . The correlations between abusive behavior and negative affect are positive and statistically significant, ranging from  $r = .16$  to  $r = .25$ . To note is also that the two neuroticism indicators show positive and significant correlations with both the abusive behavior indicators, and particularly high positive correlations with both the negative affect indicators.

### *Preliminary SEM analyses*

Before testing our hypotheses, some preliminary analyses were run. We first tested our overall measurement model by comparing the fit of a 1-factor model with all 12 study variables loading on a single latent factor, with that of a 5-factor model that included job demands (role conflict, role ambiguity and *laissez-faire* leadership), job resources (coworker support, salary/promotion prospects and autonomy), neuroticism, job-related negative affect, and abusive behavior. The fit of the 1-factor model was not adequate:  $S-B\chi^2(54) = 742.58$ ; GFI = .84; AGFI = .76; RMSEA = .140; NFI = .73; NNFI = .69; CFI = .75. To the contrary, the fit of the 5-factor model was adequate:  $S-B\chi^2(44) = 97.80$ ; GFI = .97; AGFI = .95; RMSEA = .044; NFI = .96; NNFI = .97; CFI = .98. Factor loadings for the latter model were all significant, ranging from .35 to .93. Thus, we concluded that instead of loading on a single factor the study variables loaded, as expected, on the five factors hypothesised by our research model.

We also run a further confirmatory factor analysis to check for whether the latent factors job demands and job resources could be differentiated empirically. To this end we compared the fit of a two-factor (job demands and job resources) model to the fit of a one-factor (psychosocial risk) model. We obtained the following fit statistics for the two-factor model:  $S-B\chi^2(8) = 11.90$ ; GFI = .99; AGFI = .98; RMSEA = .027; NFI = .98; NNFI = .99; CFI = .99. As for the one factor model, fit statistics were the following:  $S-B\chi^2(9) = 31.78$ ; GFI = .98; AGFI = .96; RMSEA = .063; NFI = .94; NNFI = .93; CFI = .96. Thus, the two-factor model was clearly superior in terms of fit to the one-factor model; this was also confirmed by the Satorra and Bentler (2001) scaled chi-square difference test:  $S-B\Delta\chi^2(1) = 32.07, p < .001$ .

### *Mediation analysis*

Table 2 displays the results of a series of SEM models by which we tested for our first three hypotheses.

**Table 2.** Results of mediated SEM analysis.

	S-B $\chi^2$	<i>p</i>	df	GFI	AGFI	RMSEA	NFI	NNFI	CFI
M1 (abuse on JD and JR)	28.32	<i>p</i> = .04	17	.99	.98	.032	.97	.98	.99
M2 (job-related negative affect on JD and JR)	25.85	<i>p</i> = .08	17	.99	.98	.029	.98	.99	.99
M3 (abuse on job-related negative affect)	0.56	<i>p</i> = .45	1	1.00	1.00	.00	1.00	1.00	1.00
M4 (full mediation of job-related negative affect)	51.45	<i>p</i> = .01	31	.98	.97	.033	.97	.98	.99
M5 (partial mediation of job-related negative affect on the JD–abuse relationship)	47.31	<i>p</i> = .02	30	.99	.97	.030	.97	.99	.99
M6 (partial mediation of job-related negative affect on the JR–abuse relationship)	51.26	<i>p</i> = .01	30	.98	.97	.034	.97	.98	.99
M7 (M5 with neuroticism added)	102.72	<i>p</i> < .00	47	.97	.96	.044	.96	.97	.98

*Note.* JR = job resources; JD = job demands. S-B  $\chi^2$  = Satorra-Bentler scaled  $\chi^2$ .

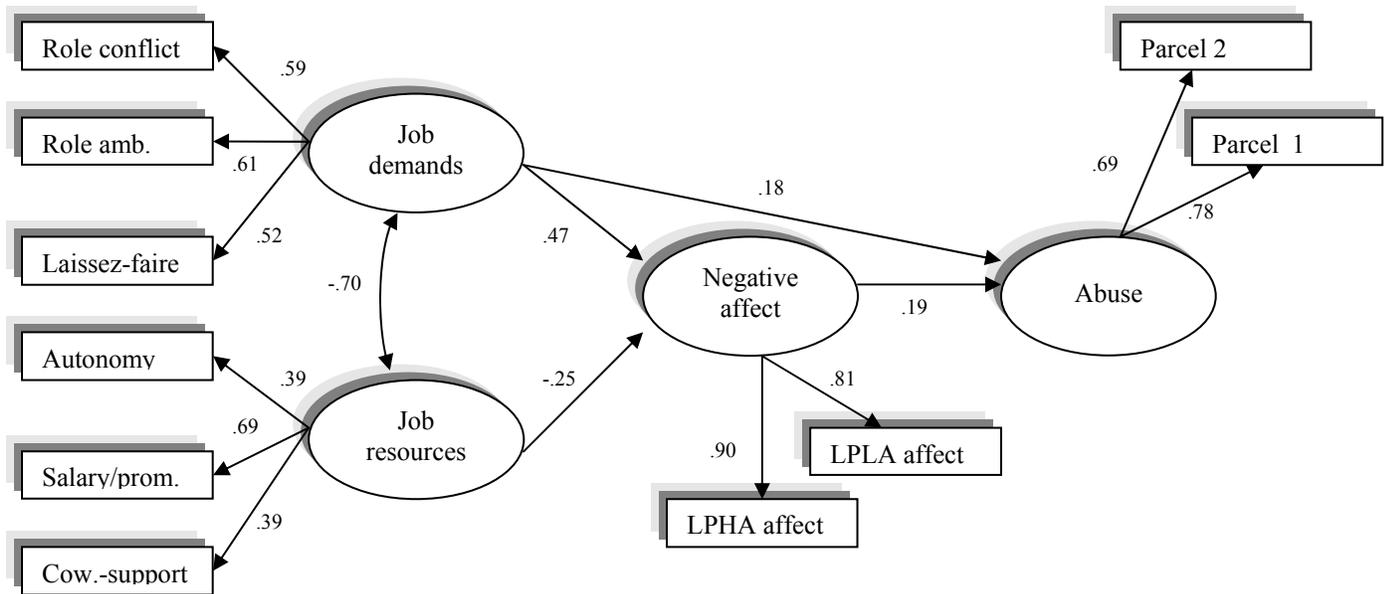
Model 1 (M1) – the direct effect model, with job demands and job resources impacting on abuse – had a very good fit to the data. As hypothesised (Hypothesis 1), job demands had a positive statistically significant effect on abuse ( $\gamma = .54; p < .05$ ). However, contrary to expectations (Hypothesis 2), job resources had also a positive effect on abuse ( $\gamma = .26; p < .05$ ), indicating that the higher the resources available, the higher the frequency with which abusive behavior was observed. Similar results have been already obtained in the literature (Fox et al., 2001) and will be discussed below.

Model 2 – testing for the effect of job demands and job resources on job-related negative affect – had an excellent fit to the data and showed that both job demands and job resources reported statistically significant effects on job-related negative affect ( $\gamma = .49, p < .05$  for job demands, and  $\gamma = -.25, p < .05$  for job resources).

Model 3 – testing for the effect of job-related negative affect on abusive behavior – had a perfect fit to the data and showed a statistically significant effect of job-related negative affect on abusive behavior ( $\gamma = .32; p < .05$ ). These results indicated that all the prerequisite conditions were met for testing the mediation of job-related negative affect on the relationships between job demands and job resources, on the one hand, and abuse on the other.

We thus compared the full mediation model of job-related negative affect (M4) with two alternative partial mediation models, one (M5) in which a direct path from job demands to abuse was added, and one (M6) in which a direct path from job resources to abuse was added. The results of these comparisons indicated that the model in which a direct path from job demands to abuse was added (M5) fitted statistically significantly better than the full mediation model (M4),  $S-B\Delta\chi^2_{M4-M5} (1) = 4.77, p < .05$ . However, the model in which a direct path from job resources to abuse was added (M6) didn't fit statistically significantly better than the full mediation model (M4),  $S-B\Delta\chi^2_{M4-M6} (1) = 0.23, n.s.$

Thus the best fitting model was Model 5, which is graphically represented in Figure 1. In Model 5 the direct path from job demands to abuse was substantially lower than the corresponding path in Model 1 ( $\gamma = .54$ ). This result confirmed that job-related negative affect mediated the relationship between job demands and job resources, on one hand, and abuse on the other. The mediation was full as far as job resources are concerned, while it was partial as far as job demands are concerned. We therefore obtained substantial support for Hypothesis 3.



Note. All the paths are statistically significant at  $p < .05$ .

**Figure 1.** The tested mediation model of abusive behavior at work.

To assess whether the hypothesised relationships in Model 5 remained significant even after controlling for the effect of neuroticism, we added neuroticism to Model 5 and a direct effect from neuroticism to job-related negative affect. This model (M7) fitted well to the data and showed that neuroticism played a statistically significant effect on job-related negative affect ( $\gamma = .37, p < .05$ ). However, the effects of job demands and job resources on job-related negative affect, though reduced in their magnitude, remained statistically significant ( $\gamma = .28, p < .05$  for job demands, and  $\gamma = -.31, p < .05$  for job resources). In model 7 the direct effect of job demands on abuse dropped to .17, which was not significant, while inspection of modification indices didn't show that neuroticism played a direct effect on abuse. Thus, the main relationships hypothesised by our model were not canceled by the inclusion of neuroticism.

### *Moderation analysis*

To test Hypotheses 4 and 5, concerning – respectively – the moderating effect of job resources and the potentiating effect of neuroticism in the process leading to abuse, we focused on the mediating model supported in the previous analyses (Model 5, Figure 1). We hypothesised that each job resource could have the potential to buffer the effect of each job demand in the process leading to abuse; furthermore, we hypothesised that neuroticism could strengthen the effect of each job demand in the same process. We thus tested twelve MSEM models obtained by combining the three job demands (role ambiguity, role conflict, and *laissez-faire* leadership) with the three job resources (decision authority, coworker support and salary/promotion) and the three job demands with neuroticism. We conducted our analyses by using the procedure outlined by Mathieu, Tannenbaum, and Salas (1992), as reported in Cortina et al. (2001). Each of the twelve tested MSEM models included three exogenous latent factors (i.e., a job demand, a job resource or neuroticism, and their interaction) and two endogenous latent factors, i.e., job-related negative affect as measured by the LPHA and LPLA affect scales, and abuse as measured by its two parcels. The three exogenous latent factors had only one observed indicator each. The indicator for the two interacting factors was obtained by standardizing (i.e., centering) the scale score used as the observed measure of each factor. The indicator for the interaction factor was the product of the two standardized scores measuring the interacting factors. The path from each latent exogenous factor to its indicator was fixed by using the square root of the reliability of the indicator. The reliabilities of the indicators for the interacting factors were estimated by means of the indicators' alphas. The reliability of the indicator for the interaction factor was calculated by taking the product of the reliabilities of the interacting factors' indicators, plus the square of their latent correlation ( $\Phi$ ), divided by one plus the square of the same latent correlation ( $\Phi$ ) just mentioned (Cortina et al., 2001). The error variance of each observed indicator was set equal to the product of its variance and one minus its reliability. The correlation between each of the two interacting factors and the factor representing the interaction was fixed at zero (Cortina et al., 2001). A significant interaction effect is supported when the path coefficient from the latent interaction factor to the latent endogenous factor is statistically significant and the model including this path fits significantly better than the model which does not include it.

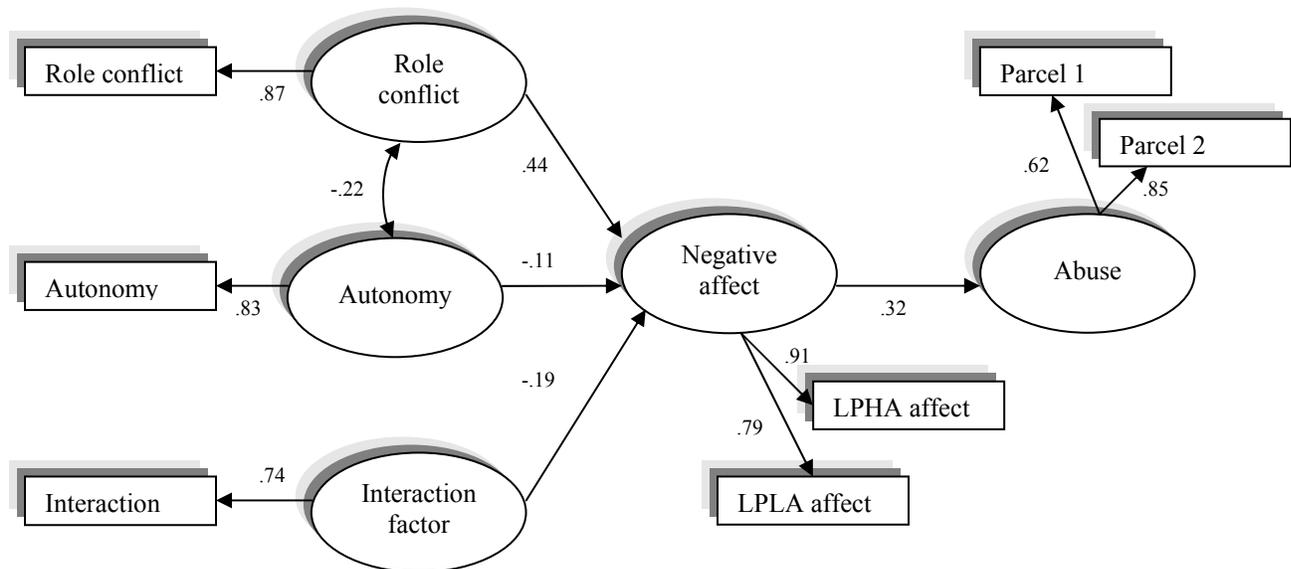
Table 3 only reports the results for the statistically significant interaction effects obtained.

**Table 3.** Results of moderated SEM analysis.

	S-B $\chi^2$	<i>p</i>	df	GFI	AGFI	RMSEA	NFI	NNFI	CFI
M8 (role conflict x autonomy: main effects only)	67.00	<i>p</i> < .00	13	.97	.94	.077	.93	.91	.95
M9 (role conflict x autonomy: main and interaction effects)	56.64	<i>p</i> < .00	12	.98	.95	.073	.94	.92	.96
M10 (role conflict x neuroticism: main effects only)	45.54	<i>p</i> < .00	13	.98	.96	.060	.96	.96	.97
M11 (role conflict x neuroticism: main and interaction effects)	41.51	<i>p</i> < .00	12	.98	.96	.059	.97	.96	.98
M12 (role ambiguity x neuroticism: main effects only)	25.90	<i>p</i> < .00	11	.99	.97	.044	.99	.99	.99
M13 (role ambiguity x neuroticism: main and interaction effects)	14.97	<i>p</i> = .13	10	.99	.98	.027	.99	1.00	1.00
M14 ( <i>laissez-faire</i> leadership x neuroticism: main effects only)	33.36	<i>p</i> < .00	13	.99	.97	.047	.97	.97	.98
M15 ( <i>laissez-faire</i> leadership x neuroticism: main and interaction effects)	29.71	<i>p</i> < .00	12	.99	.97	.046	.97	.97	.98

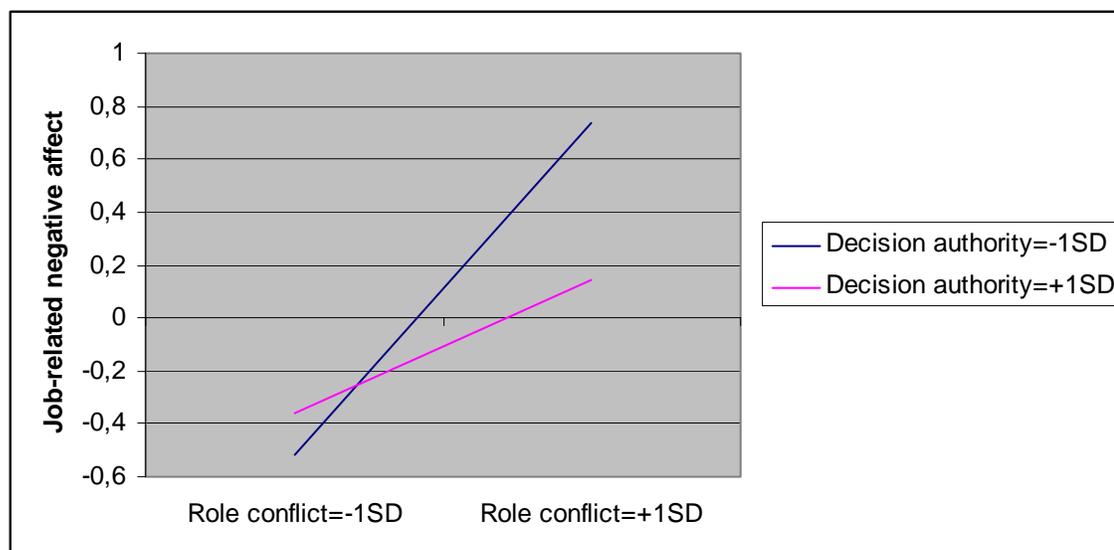
Note. S-B  $\chi^2$  = Satorra-Bentler scaled  $\chi^2$ .

In general, we found only modest indication for a buffering effect of the examined job resources in the process leading from job demands to abuse. Most of the interactions were not significant and only a few approached significance. The only clear statistically significant result emerged for the interaction including role conflict and autonomy. For this effect, the model which didn't include a direct path from the interaction factor to the negative affect factor (Table 3, M8) had a poorer fit than the model that included this path (M9). A comparison between the two models revealed that the latter model fitted statistically significantly better than the former model ( $S-B\Delta\chi^2_{M8-M9}(1) = 13.62, p < .01$ ). Furthermore, Model 9 (Figure 2) showed a statistically significant path ( $\gamma = -.19; p < .05$ ) from the interaction factor to the negative affect factor. Simple slope analysis (Figure 3) confirmed the buffering effect of autonomy in the relationship between role conflict and job-related negative affect: this relationship was relatively weaker when autonomy was high, while it was stronger when autonomy was low.



*Note.* All the paths are statistically significant at  $p < .05$ .

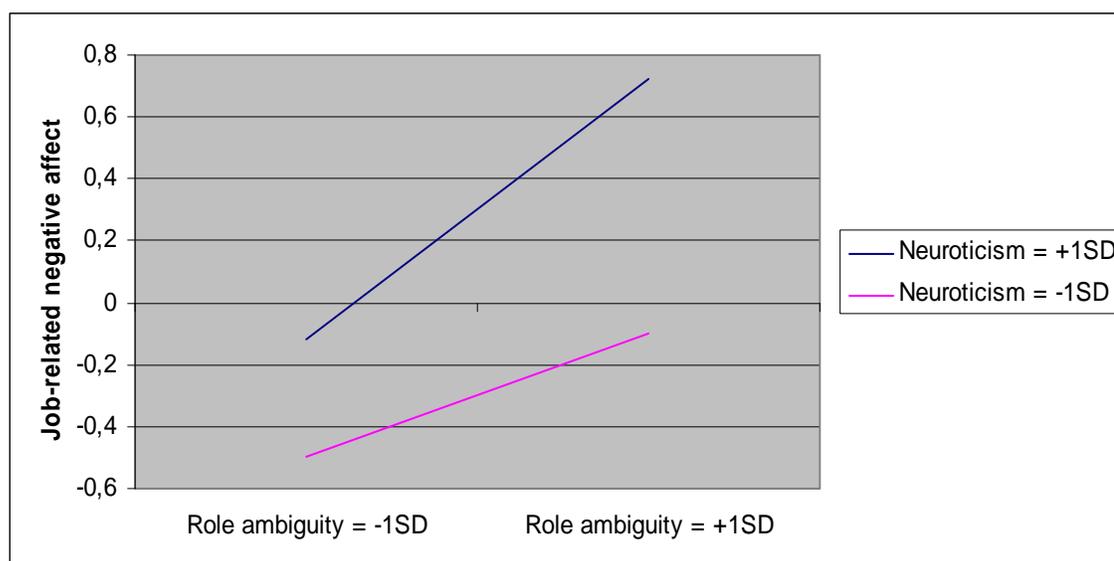
**Figure 2.** SEM analysis of interaction between role conflict and autonomy on job-related negative affect.



**Figure 3.** Simple-slope analysis of interaction between role conflict and autonomy on job-related negative affect.

As far as the interactions between job demands and neuroticism are concerned, here the results showed a pattern which gave some support to the stated hypothesis. Table 3 (models 10-11) reports the fit statistics for the role conflict by neuroticism interaction. The scaled chi-square difference test between the two models was statistically significant ( $S-B\Delta\chi^2_{M10-M11}(1) = 4.13, p < .05$ ) and indicated that the model which included the path from the interaction factor to the job-related negative affect factor fitted better than the model which didn't include this path, though the strength of the interaction path was only at the significance level ( $\gamma = .08; p = .05$ ). When testing for the interaction between role ambiguity and neuroticism, we had to preliminary adjust the main effects model, since it didn't fit the data well. The misfit was mainly due to substantial relationships between the interaction factor and its component factors, which were not eliminated by the preliminary centering operations. According to Cortina et al. (2001, p. 329), "centering does not necessarily reduce these relationships to a point at which they need not be estimated". Thus, we fixed the model by freeing the covariance between the interaction factor and each of its component factors; the obtained model (M12) had an acceptable fit to the data. When we estimated in this model the direct path from the interaction factor to the negative affect factor we obtained Model 13, which fitted significantly better than its preceding model ( $S-B\Delta\chi^2_{M12-M13}(1) = 5.21, p < .05$ ) and showed a significant interaction effect between role ambiguity and neuroticism ( $\gamma = .11; p < .05$ ). A similar pattern emerged also for the

*laissez-faire* leadership by neuroticism interaction, for which however the chi-square difference test between the main effects model (M14) and the main effects plus interaction model (M15) was just above the significance level ( $S-B\Delta\chi^2_{M14-M15}(1) = 3.43, p = .06$ ). However, the interaction path did reach the statistical significance in Model 15 ( $\gamma = .08; p < .05$ ). Importantly, all the interaction effects between job demands and neuroticism were in the expected direction and demonstrated the potential of neuroticism to strengthen the job demands–job-related negative affect relationship in the process leading to abuse. To give an example, Figure 4 represents simple slope analysis for the role ambiguity by neuroticism interaction, which accounted for a 3% variance more in job-related negative affect. It is clear from Figure 4 that at higher level of neuroticism the role ambiguity–job-related negative affect relationship is stronger.



**Figure 4.** Simple-slope analysis of interaction between role ambiguity and neuroticism on job-related negative affect.

## Discussion

Our analysis drew on recent advances in work stress theory (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004) and tested an expanded stressor-emotion model (Spector & Fox 2005) of abusive behavior at work in which job demands and job resources acted as – respectively – triggering and protective factors, and job-related negative affect as a crucial mediating process. Furthermore, the role of neuroticism was also considered as a control variable which affects

abuse through the heightened experience of negative emotions at work. Finally, a number of moderating and potentiating relationships between abuse inducing and protective factors were also explored. Most research in the area of CWB has adopted what has been called a ‘piecemeal’ approach (Fox et al., 2001), meaning that only individual linkages between different parts of an overall model of CWB have been considered. In contrast, the particular operationalization of job demands and job resources adopted in our analysis and the use of structural equation modelling, enabled us to successfully test a more comprehensive model of CWB which more closely reflected the reality of workplaces, where different organizational and personal factors may influence individual workers at the same time. It should also be noted that the way in which job demands and job resources were operationalized is not new in this area, since a number of researchers (Beehr & Newman, 1978; Viswesvaran, Sanchez, & Fisher, 1999) have assumed similar metaconstructs capturing different underlying unidimensional constructs of stressors (including also resources) and strains.

In line with our first hypothesis, the results of SEM analysis indicated that a job demands factor made up of role conflict, role ambiguity and *laissez-faire* leadership style, which are three different kinds of hindrance stressors (Podsakoff, LePine, & LePine, 2007) – i.e. stressors that tend to be perceived by workers as constraining their personal development and work-related accomplishment – was strongly positively related to abusive behavior. However, contrary to our second hypothesis, an overall job resources factor consisting of co-worker support, autonomy and salary/promotion prospects was also positively related to abusive behavior, meaning that the greater the resources available, the more frequent the reported abusive behavior.

The latter result is surprising and may cast doubt on the interpretation of abuse as a stress reaction, because job resources such as social support and decision authority are widely known (e.g. Karaseck & Theorell, 1990; Quick, Quick, Nelson, & Hurrell, 1997) to have a protective effect against job stress. However, a similar result has been already obtained in this area. Specifically, Fox et al. (2001) found that the availability of autonomy increased the effect of job stressors (interpersonal conflict and distributive un-justice) on personal CWB, although the main effect of autonomy was not reported. We carefully examined our model in which job demands and job resources were directly related to abuse in search of an explanation for the counter-intuitive result. We found that when we constrained the path from job demands to abuse to zero and refitted the model (see Figure 1 above), the effect of job resources on abuse became negative

( $\gamma = -.25, p < .05$ ) suggesting that job resources have a positive effect on abuse only when job demands are also included. This may imply that when the potentially straining effect of job demands is considered, the availability of job resources promotes abusive behavior as a way to discharge individual strain. However, we believe that, in order to obtain a better picture on the relations between work characteristics and abuse, negative affect and personality should also be included, since these factors have both an important role in the process leading to abuse and their non-inclusion may reveal only a partial picture.

In line with our expectations, we found that job-related negative affect as operationalized in terms of both high (e.g., anger) and low (e.g., discouragement) arousal negative affect, had a mediating effect in the relationship between job demands and job resources, on the one hand, and abuse on the other. According to Lazarus's transactional model (see e.g. Lazarus, 2006), psychological stress is intrinsically bound up with affective arousal and the activation of regulative processes intended to manage this affect. We made use of the framework of job-related affect proposed by Warr (1990), and later adapted by van Katwyk et al. (2000), which categorizes affective experiences at work along the two dimensions of pleasantness and arousal. Counterproductive work behavior is hypothesised to be a reaction to low-pleasure high-arousal affective experiences, mainly anger and anxiety (Judge, Scott, & Ilies, 2006; Spector & Fox, 2005). However, we broadened this perspective by including low-pleasure low-arousal affective states as well, since the latter may be equally powerful in triggering CWB. For example, low-arousal affective experiences such as boredom have been reported (Vartia, 1996) to be among the causes of workplace bullying, which is abusive and hostile behavior against others – although captured from the target's perspective (Zapf & Einarsen, 2005).

Our results showed that, although the mediation of job-related negative affect was not full, most of the effect of job demands on abuse was due to the experience of negative affect. As for job resources, their deterrent effect on abuse was best seen when job-related negative affect was considered, since job resources were negatively related to negative affective feelings which are critical antecedents of abuse. Also to be noted is that the inclusion of neuroticism, which previous meta-analyses (Berry et al., 2007; Hershcovis et al., 2007) have shown to be a powerful predictor of CWB, did not cancel the triggering and protective potential of, respectively, job demands and job resources on abuse. Neuroticism did show a relatively strong effect on abuse, but only indirectly by heightening the experience of job-related negative affect. All this seems to

indicate that, although some individuals are particularly prone to experiencing job-related negative affect and thus are at higher risk of engaging in abusive behavior, there is another powerful path to abuse which is activated by job stress inducing factors and which is relatively independent from the disposition to experience negative affect. This has important implications for abuse prevention in the workplace, as we will further discuss below.

The results of these analyses suggest that abuse, which is considered to be a dysfunctional form of behavior from an organizational perspective (Sackett & DeVore, 2001), may actually be functional from an individual one. This is because, by engaging in abusive behavior, individuals may discharge otherwise health-impairing affective experiences at work. In other words, it may be that abuse makes it possible for the damaging effect of negative working conditions on psychophysical health not to go beyond negative affective states. If this is the case, it may be speculated that abuse attenuates the potential of job demands to lead to the emergence of serious health consequences (e.g., burnout or psychosomatic complaints). This is an interesting hypothesis for future research in this area. However, it may be that not all forms of CWB attenuate the health impairment process. Our analysis produced evidence that it might be so for abuse. Other forms of CWB found to relate to negative affective states are withdrawal and production deviance (Spector et al., 2006). However, theft has been shown (Spector et al., 2006) to be unrelated to negative emotions, suggesting that more rationale motives may drive this form of CWB. Hence, a more fine-grained analysis of the different processes leading to different forms of CWB, such as ‘hot’ (emotional) vs. ‘cold’ (cognitive) processes, may be another avenue for future research.

We found little evidence for a moderating effect of job resources in the process that leads from job demands to abuse. We tested for all the possible combinations among the three job demands and the three job resources considered by using moderated structural equation modelling (Cortina et al., 2001). Given the results of our mediation analysis, we tested for the moderation effect of job resources in the job demands–job-related negative affect relationship. The only significant interaction emerged for the combination of role conflict by autonomy, which indicated that the higher availability of autonomy attenuated the effect of role conflict on job-related negative affect and, as a consequence, on abuse. This result contrasts with the previous finding (Fox et al., 2001) that the availability of autonomy in response to job stressors led to more interpersonal deviance. However, Fox et al (2001) tested for the buffering effect of

autonomy on interpersonal deviance, while we tested for the buffering effect of autonomy on the immediate precondition of abuse, i.e. job-related negative affect. Thus, it may well be that autonomy has different effects at the different levels of the path leading to abuse, such as a moderating effect on the stressor–job-related negative affect relationship and a potentiating effect on the job-related negative affect–abuse relationship. This may mean that autonomy prevents the effect of certain job demands on negative affect; however, when negative affect is experienced, autonomy facilitates the discharge of such negative affect through abusive behavior. Both these mechanisms may be beneficial for the conservation of individual well-being. We believe that further research would be worthwhile on the potentially differential effect of autonomy (and perhaps of other job resources) at the different levels of the stress process.

The fact that only the role conflict by autonomy interaction proved to be statistically significant may mean that either only autonomy exerts some buffering effect in the reaction leading to abuse, or that the buffering effect of autonomy was the only effect sufficiently robust in the sample investigated to be detected by moderation analysis. The problem of the detection of interactions in observational studies is widely known (Cohen, Cohen, West, & Aiken, 2003). For this reason we believe that further research is needed to understand whether different job resources, in addition to autonomy, could moderate the stressor-abuse reaction.

Many studies have been conducted on the effect of personality on CWB (see Berry et al., 2007; Spector & Fox, 2005). However, interaction effects between personality and contextual factors have been rarely included (an exception is Colbert et al., 2004). But we found substantial evidence that neuroticism strengthens the effect of job demands on the job-related negative affect–abuse relationship. We detected significant potentiating interactions between neuroticism, on the one hand, and role conflict and role ambiguity on the other, while the interaction involving laissez-faire leadership only approached the significance level. This implies that personality factors may indeed be crucial variables to be considered in a stressor-emotion model of abusive behavior, and that an interactionist perspective (Hershcovis et al., 2007) in understanding engagement in abuse and other forms of CWB may be the more promising one for the future. Future research in this area could examine the main and moderating effects of other personality factors in the process leading to abuse and other forms of CWB. It is highly likely that other factors concerning individual differences in emotional reactivity, such as negative affectivity, trait anger and trait anxiety, will also affect abuse and other forms of CWB by amplifying the

effect of job demands on job-related negative affect. However, factors such as conscientiousness may exert their main and interaction effect at other levels of the chain leading to CWB, for example by attenuating the CWB response when negative affective states are aroused as a consequence of job demands. It may also be possible that the salience of different personality factors depends upon the specific form of CWB considered. All this suggests that further research on the interplay between personality and contextual variables in triggering specific forms of CWB is also warranted.

To conclude, we believe that this study makes an original contribution to the CWB literature by shedding light on different aspects of the process leading to abusive behavior in organizations. We have demonstrated that the effect of work environmental factors on abuse is mostly transmitted through the experience of job-related negative affect, including both high and low arousal negative affective experiences. Secondly, we have shown that the inclusion of a critical personality factor for CWB such as neuroticism (Berry et al., 2007) does not cancel the impact of work characteristics in the process leading to abuse, strengthening the view that this impact is robust and that abuse may indeed be an interpersonal correlate of work stress (Fox et al., 2001). Thirdly, whereas there is limited evidence in favour of an interactionist perspective between work and personal characteristics in predicting CWB (see Hershcovis et al., 2007), we have demonstrated the utility of this perspective by showing the potentiating effect of neuroticism in the process that leads from some hindrance demands (Podsakoff et al., 2007) to abusive behavior.

### *Limitations*

The first and most important limitation of our research is its cross-sectional nature, which entails that we cannot draw any conclusions regarding the direction of the causal flow between variables. There is much evidence from longitudinal studies in the work stress area (see e.g. Hakanen, Schaufeli, & Ahola 2008; Schaufeli, Bakker, & Van Rhenen, in press) that organizational factors such as workload, autonomy and social support have causal effects on health outcomes such as burnout. Hence we can be rather confident about the causal direction of some of the relationships tested (i.e. from job demands and job resources to job-related negative affect). Moreover, the relationship between job demands and abuse is in line with robust and well-researched human aggression theories (see e.g. Neumann & Baron, 2003; 2005) building

upon a classic hypothesis in psychology, namely the frustration aggression hypothesis (Dollard et al., 1939). However, a robust test of the mediating effect of job-related negative affect would, logically speaking, require a 3-wave longitudinal dataset (Taris & Kompier, 2006). Furthermore, as suggested by Spector and Fox (2005), it is likely that causality runs in many directions: for example, abuse may have an effect on the environment and increase job demands and/or decrease job resources. However, the usefulness of the stressor-emotion model lies merely in its potential to unravel critical linkages in the CWB process, not to explain all the possible relationships among the variables involved (Spector & Fox, 2005).

A second limitation of our analysis is that all the data were self-reported, which may imply a bias due to common method variance or the wish to answer consistently. However, it is also true that employees may be in the best position to evaluate their work environment and their reactions to it, and that other methods, such as observer ratings of working conditions, may be equally affected by bias (Chan, 2009; Spector, 2006). Moreover, for at least some of the measures included (e.g. abuse) there is evidence of convergence between self- and other-reports (Fox, Spector, Goh, & Bruursema, 2007). Furthermore, one of the variables which may inflate correlations between common method measures is social desirability. To reduce the effect of this variable, it was carefully explained to study participants that their responses would remain anonymous and that their participation was voluntary: for example, this was clearly stated on the cover page of the questionnaire, and it was repeated by members of the research team before each session of data collection. In addition to this, we empirically tested the fit of a model assuming that all study variables would load on a single factor which may be interpreted as a common method factor. We then compared it to a five-factor measurement model which was consistent with our operationalization of the constructs of interest. We found that the former model did not fit the data, while the latter model did so sufficiently well. We consequently believe that the effect of at least some of the causes of common method variance has been limited in our findings. Of course, longitudinal studies in which self-, other-, and objective reports are used would be a better option in this research area. For example, studies in which observer reports on job characteristics are related to self-reports on mediating variables and to objective reports of CWB would be a robust confirmation of the present findings.

A third important limitation of the present study is its lack of generalizability to the entire working population. We have focused on employees with non-managerial jobs in a public

administration agency. Hence there is a need to cross-validate the present findings in other samples of workers.

### *Practical implications*

CWB in general (Fox & Spector, 2005) and abuse in particular (Di Martino et al., 2003; LeBlanc & Barling, 2005) may entail considerable costs for organizations, not only in terms of lower productivity, but also in terms of external corporate image, which is a crucial element at a time of extreme competitiveness among organizations. The societal costs of violence and aggression at work are also of great importance (European Agency for Safety and Health at Work, 2007; European Foundation, 2007). In terms of primary prevention (see Quick et al., 1997), it seems possible to prevent abusive behavior particularly by lowering job demands, at least hindrance demands such as role stressors and a laissez-faire leadership style, which – incidentally – are also associated with a number of other negative outcomes leading to lower productivity (Podsakoff et al., 2007). A preliminary risk assessment of the extent to which specific job demands constitute a problem in the organization targeted is essential to gain a reliable picture of the situation. To be noted is that, under directive 89/391 of the European Communities – which regards the implementation of measures in the member states aimed at improving health and safety at work – such a risk assessment is mandatory in European organizations. However, since it is impossible entirely to prevent job-related stress, secondary prevention (Quillian-Wolever & Wolever, 2003) should ideally also be in place. In other words, organizations should become more sensitive to the emotions of their employees. They could, for example, train their managers to identify and deal with the negative affective reactions of their employees and to foster positive affective experiences at work. This would most probably also impact on the laissez-faire attitude of managers. Organizations could also train employees to become more sensitive to their own affective experiences and perhaps able to manage them constructively and effectively. The role of emotions in the workplace has long been neglected; yet an increasing number of studies, including the present one, show that they may have a crucial role in determining important outcomes at work.

## Chapter 6

### **Are role stressors and workaholism related to abusive behavior at work? The mediating role of workplace bullying**

#### Abstract

Research on workplace aggression has investigated the phenomenon either from the perspective of the victim or from the perspective of the actor. Taken separately, however, these approaches may yield only a partial picture of the aggression phenomenon. The analysis reported in the present study tested a model of abusive behavior at work in which work-environmental factors (i.e. role stressors) and personal factors (i.e. workaholism) trigger abuse and being the target of bullying acts as a mediating process. The participants were 462 employees of the health sector in Italy. The results of structural equation modelling showed that role stressors and workaholism were independently related to abusive behavior, and that undergoing bullying acted as a mediating process. Furthermore, an interaction between role stressors and workaholism had added value in explaining the hypothesised path to abusive behavior.

Keywords: abuse/hostility, workplace bullying, workaholism, stressor-emotion model, role stressors

## Introduction

Workplace aggression, defined as physically or psychologically harmful behavior directed toward co-workers or others in a work-related context (Schat & Kelloway, 2005), is a significant issue for modern organizations (Di Martino, Hoel, & Cooper, 2003).

Researchers have made great efforts to understand the occurrence of workplace aggression. To this end, they have focused on one of the two different perspectives of aggression (Fox & Spector, 2005): that of the actor or that of the target. In the former case they have investigated phenomena that have been termed counterproductive work behavior (Spector & Fox, 2005), interpersonal deviance (Bennet & Robinson, 2000), revenge (Bies & Tripp, 2005), retaliation (Folger & Skarlicki, 2005), and abuse (Spector, Fox, Penney, Bruursema, Goh et al., 2006). In the latter case researchers have often focused on the phenomenon of workplace bullying (Einarsen, Hoel, Zapf & Cooper, 2003), otherwise called 'mobbing' (Zapf & Einarsen, 2005) or emotional abuse at work (Keashly & Harvey, 2005). Research on workplace aggression has tended to separate the actor's and the target's perspectives, perhaps on the assumption that the actors of aggression are individuals different from its targets. This is most evident in research on workplace bullying, where victims are clearly differentiated from perpetrators (Zapf & Einarsen, 2003). However, this may not always be the case, as suggested by Anderson and Person (1999) with their concept of the 'incivility spiral' whereby perceived wrongdoing may be related to aggressive actions that escalate in a spiral of conflict. Indeed, there is some evidence that undergoing bullying and emotional abuse at work may predict overt anger (Aquino, Douglas, & Martinko, 2004) and counteraggression (e.g. Lee & Brotheridge, 2006). However, these studies only furnish a partial picture of the aggression phenomenon, since no or scant consideration has been made of potentially antecedent environmental and personal factors that set off the aggression causal chain. By contrast, environmental and personal factors have been shown to be of crucial importance for aggression as investigated from the perspective of both the target (Hoel & Salin, 2003; Zapf & Einarsen, 2003) and the actor (Berry, Ones, & Sackett, 2007) because they seem to create the conditions in which these phenomena take place.

Thus, to gain clearer understanding of the phenomenon of workplace aggression, the present study develops and tests a model that integrates the actor and the target perspectives and in which work environmental and personal factors, as well as their interaction, are considered as the triggering elements. The terms 'abuse' or 'abusive behavior' (Spector et al., 2006) are chosen

to describe the aggression experience from the actor perspective, while the focus is on workplace bullying (Einarsen et al., 2003) as far as the target perspective is concerned. One of the main concerns of the study is to test whether being the target of bullying mediates the effect of work-environmental and personal factors on abusive behavior. The study starts by introducing the theoretical models of reference to understand abuse at work. It then provides the rationale for the hypothesised mediating effect of workplace bullying.

### *Theoretical models of abusive behavior at work*

The most important explanations put forward for abusive behavior at work have their roots in the frustration-aggression hypothesis (Berkowitz, 1989; Dollard, Doob, Miller, Mowrer, & Sears, 1939), which states that the interference with one's goals would determine an aggressive reaction. According to Neuman and Baron (2003, 2005), the general affective aggression model (GAAM; e.g. Anderson, 1997) is a good framework with which to understand aggression in the workplace. This model postulates that aggression is triggered by a number of different input variables, which may be grouped into two categories: aspects of the current situation, and individual difference factors. As far as the first category is concerned, besides exposure to aggressive models and stimuli that may evoke aggression (e.g., weapons), almost everything in the environment that causes discomfort and stress may lead to an aggressive response – from high temperature to conflicting relationships with others. As for individual difference factors, these include traits such as Type A behavior, trait anger, trait anxiety, neuroticism, as well as other factors such as attitude and beliefs about violence (e.g., the belief that violence may be necessary in certain circumstances). According to the GAAM model, these variables lead to aggression by generating 'critical internal states' (Neuman & Baron, 2003) mainly made up of emotions such as anger, and cognitions such as hostile thoughts.

Building upon the GAAM model and integrating it with the prevalent approaches to the stress process in general (Lazarus, 2006; Lazarus & Folkman, 1984) and job stress in particular (Spector, 1998), Spector and Fox (2005) have more recently proposed the stressor-emotion model of counterproductive work behavior (CWB). This is a model more specific than the GAAM because it focuses on aggression occurring in the workplace. The stressor-emotion model postulates a causal flow from the objective environment, through its subjective interpretation and emotion, to behavior. The crucial mediator in the relationship between the work environment and

abuse is work-related emotion. Emotion is considered to be a functional mechanism that activates the individual physiologically to the end of taking appropriate action (Fox, Spector, & Rodopman, 2004). Individuals continuously monitor events in the workplace. When they perceive a stressor they tend to experience negative emotions, such as anger or anxiety, which may be translated into abusive behavior. Two other critical factors in the stressor-emotion model are control and personality. Control is supposed to attenuate the process leading to abuse at different levels, specifically at the level of appraisal and at the level of the behavioral reaction. Personality is presumed to exert its effect at all levels: appraisal, emotional responsivity, and behavioral reaction.

However, at present most research using the stressor-emotion model has focused mainly on single linkages between the factors of importance. Much research has investigated the relationship between personality factors and CWB in general or abuse in particular, with findings that support significant associations between abuse and emotional stability, agreeableness, and trait anger (Berry et al., 2007; Hershcovis, Turner, Barling, Arnold, Dupré et al., 2007). Research on the potential effect of contextual factors (Hershcovis et al., 2007; Spector & Fox, 2005) has revealed that the most powerful correlates of abuse are interpersonal conflict and organizational constraints, with the latter being defined as factors that impede work performance such as role conflict and role ambiguity (Spector & Jex, 1998). Research has also shown that perceived stressors usually found to correlate with CWB are related to negative emotions (Spector et. al. 2006; Spector & Goh, 2001), and there is some evidence that job-related negative affect performs a mediating role in the relationship between stressors (interpersonal conflict, constraints and procedural justice) and abuse (Fox, Spector, & Miles, 2001). However, in rarer circumstances researchers have conducted more comprehensive tests which integrate the variables of importance in explaining abusive behavior, exploring potential mediating processes and moderating factors. For example, a recent meta-analysis by Hershcovis et al. (2007) concluded that, although research has shown that there are significant effects of both personal and contextual factors on workplace aggression, future studies should concentrate more on the possible interaction between these two order of factors. There is therefore a need for more refined research in this area.

### *Workplace bullying as a mediator*

Workplace bullying refers to exposure to negative behaviors at work such as giving the victim an unmanageable workload, causing his/her social isolation, making him/her the target of verbal insults, removing key areas of responsibility from him/her, etc. (Einarsen et al., 2003; Leymann, 1990a). In order for the label ‘bullying’ to be given to such negative behaviors they must occur frequently (e.g. weekly) and for a prolonged period of time (usually several months). Much research on workplace bullying has focused on the health consequences for the individual exposed to it, documenting the phenomenon’s potential to have highly detrimental effects on health (Einarsen & Mikkelsen, 2003). Specifically, bullying has been found to relate to both anxiety and depression (e.g. Hansen, Høgh, Persson, Karlson, Garde et al., 2006; Niedhammer, David, Degioanni & 143 occupational physicians, 2006; Quine, 1999, 2001; Zapf, Knorz, & Kulla, 1996) and even to post-traumatic stress disorder (Leymann & Gistafsson, 1996; Mikkelsen & Einarsen 2002) and suicidal ideation and attempts (Balducci, Alfano, & Fraccaroli, 2009). Researchers have also focused on the potential relationship between bullying and personality. Studies have supported (e.g., Aquino, Lewis, & Bradfield, 1999; Coyne, Seigne & Randall, 2000; Coyne, Smith-Lee Chong, Seigne, & Randall, 2003; Matthiesen & Einarsen, 2001; Smith, Singer, Hoel & Cooper, 2003; Vartia, 1996; Zapf, 1999) the idea (Zapf & Einarsen, 2005) that certain personality characteristics, such as negative affectivity or neuroticism, may increase the risk of becoming a victim of bullying, perhaps because individuals with such characteristics tend more often to act in ways that violate social norms or threaten others’ identities, or because they tend more frequently to make hostile attributions for the behavior of others (Aquino & Thau, 2009). More recent research on bullying has sought to understand the organizational context that may fuel the phenomenon (Hoel & Salin, 2003). Here, in line with the work environment hypothesis (Leymann, 1990a; 1996), research has shown that incoherent production procedures such as poor managerial practices and role conflict and role ambiguity (De Raeve, Jansen, van den Brandt, Vasse & Kant, 2008; Hauge, Skogstad, & Einarsen, 2007; Hodson, Roscigno, & Lopez, 2006; Skogstad, Einarsen, Torsheim, Aasland, & Hetland, 2007; Tuckey, Dollard, Hosking, & Winefield, 2009) may provide a context in which bullying may be necessary and/or allowed.

There are a number of reasons why bullying may be an important mediator in the relationship between contextual and personal factors and abusive behavior. The first is that both

bullying (e.g. Skogstad et al., 2007) and abuse (e.g. Chen & Spector, 1992) seem to develop in an organizational context characterized by distressing working conditions such as role conflict and role ambiguity. Furthermore, both bullying (Zapf & Einarsen, 2005) and abuse (Spector & Fox, 2005) involve individuals with similar personality characteristics, such as low emotional stability or negative affectivity. Thus the potential antecedents of abusive behavior are also potential antecedents of bullying. Secondly, bullying consists of negative behaviors that persist over time. While sporadic behaviors may be more ambiguous as regards their causes, bullying behaviors may be closely scrutinized by the victim, so that a clear interpretation of their causes may be made. This repeated appraisal of bullying behaviors often ends with the attribution of intentionality to the perpetrator (Einarsen et al., 2003) and research has shown (Pastore, 1952) that acts perceived as intentionally frustrating result in more intense aggressive reactions than do acts perceived as unintentional. A third important reason for a mediating effect of bullying along the path leading to abuse is that bullying generates strong emotional reactions; reactions which are usually more extreme than those reported in work-related stress research (Zapf & Einarsen, 2005). An important behavioral correlate of these reactions may be abuse either directed toward the source of frustration or displaced against third parties (Marcus-Newhall, Pedersen, Carlson, & Miller, 2000). For example, it has been shown that the experience of post-traumatic stress symptoms, which are typical reactions to bullying (Mikkelsen & Einarsen, 2002), is related to aggressive behavior in laboratory settings (Kivisto, Moore, Elkins, & Rhatigan, 2009). In brief, previous research has supported a relationship between work environmental and personal factors and abusive behavior, between work environmental and personal factors and bullying, and between bullying and abusive behavior. Thus, all the preconditions (Baron & Kenny, 1986) for testing a mediating effect of bullying are present.

### *The present study*

This present study develops and tests a model of abusive behavior at work incorporating crucial contextual and personal factors that may trigger the aggressive reaction, and exposure to bullying as a mediating variable. The context is the healthcare sector in Italy, which is at particularly high risk of aggression episodes. For example, a recent representative survey carried out by the Italian National Institute of Statistics on the working population (ISTAT, 2008) revealed that, of 13 occupational sectors, the health sector scored highest for the frequency of exposure to arrogant behavior and discrimination, with 8.7% of workers reporting such exposure.

Similarly, the health sector is the fourth highest sector in terms of exposure to threats of physical violence (2.8%) after the public administration (5.0%), the financial services sector (3.0) and the transportation sector (2.9%). Similar results have been obtained at the European level (European Foundation, 2007), from which study it also emerges that the experience of aggression in the health sector is related to relationships with both patients and other people (11.4%) and colleagues (6.1%).

Building on previous research on workplace aggression, which found that organizational constraints (i.e. factors that impede work performance) seem to be particularly critical for both abuse (e.g., Spector & Fox, 2005) and bullying (e.g., Skogstad et al., 2007), this study operationalizes the work-environmental context of aggression in terms of role conflict and role ambiguity. As regards personal factors, it focuses on an individual difference factor that is receiving increasing attention in the occupational health psychology literature, namely workaholism (McMillan, O'Driscoll, & Burke, 2003), which is defined by the two elements of a tendency to working very hard and an irresistible inner drive to work (Schaufeli, Bakker, Van der Heijden, & Prins, 2009; Schaufeli, Taris, & Bakker, 2008). While traditional personal factors such as the Big Five have received much attention in relation to workplace aggression (e.g., Berry et al., 2007), no research has investigated the potential effect of workaholism. As a consequence of profound changes in the world of work (Hellgren, Sverke, & Näswall, 2008; Kompier, 2006; Landsbergis 2003), which are causing – among other phenomena – a progressive blurring of the boundaries between work and other life spheres (Allvin, 2008), workaholism may become particularly critical in explaining individual reactions to work.

Research has shown that workaholism is negatively related to job satisfaction (e.g. Aziz & Zickar, 2006) and a number of health outcomes such as burnout (Schaufeli, et al., 2009). Thus, since workaholics report low subjective well-being at work, it is likely that they commonly experience those negative emotions such as anger and anxiety that are the immediate preconditions of abusive behavior (Spector & Fox, 2005). Furthermore, the definition of workaholism fits well with the 'hot temperament' (Anderson & Pearson, 1999) defined as high in emotional reactivity and low in self regulative capacity, which is a risk factor for both engaging in abusive behavior (e.g. Spector & Fox, 2005) and for becoming a victim of bullying (Zapf & Einarsen 2005). Finally, workaholics create difficulties for their co-workers (Burke, 2001) and

may have poor job performance (Schaufeli et al., 2008), which may elicit aggressive behavior and bullying from both colleagues and the supervisor.

Hence, in line with the above considerations, the analysis reported here developed the theoretical model represented in Figure 1 and tested the following three hypotheses:

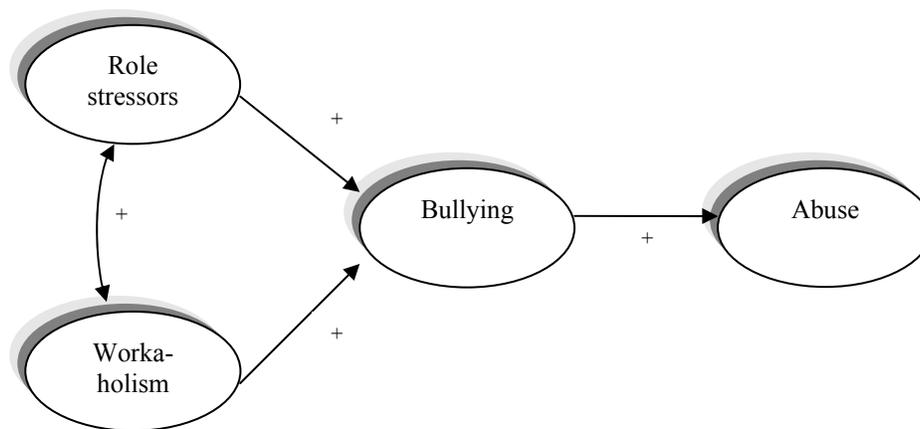
*Hypothesis 1:* Role stressors are positively related to abuse.

*Hypothesis 2:* Workaholism is positively related to abuse.

*Hypothesis 3:* Workplace bullying mediates the relationships between role stressors and workaholism, on the one hand, and abuse on the other.

Furthermore, since an interactionist perspective (Hershcovis et al., 2007) was adopted to improve understanding of workplace aggression and since it is highly plausible that the effect of role stressors is increased by workaholism, in line with the hypothesised mediation model, it was further proposed that:

*Hypothesis 4:* Workaholism strengthens the effect of role stressors on bullying in the process leading to abusive behavior at work.



**Figure 1.** The theoretical model guiding hypotheses testing.

## Method

### *Participants*

A survey intended to explore factors of work-related stress was conducted in the period May-August 2009 in a local NHS unit of northern Italy. The survey focused only on the departments which, according to the organization's health and safety office, were most at risk of work-related stress as indicated by criteria such as sickness absenteeism, turnover, etc. Specific

information on these variables was not available to researchers. Workers were requested to fill in a structured, anonymous questionnaire exploring a number of factors relevant to work stress, including those examined by the present study. Questionnaire administration took place during working hours, separately for each of the participating departments. A total of 462 employees participated in the survey, with 76.5% being females. The response rate varied from 48.2% to 93.3% in the various departments. The age classes most represented were 30-39 years (37.5%) and 40-49 years (34.1%). Participants were medical doctors (6.5%), nurses (67.4%), administrative staff (24.1%), and others (e.g., personnel responsible for cleaning rooms, for moving patients, etc.; 2.0%). Most of the participants (94.9%) had permanent job contracts.

### *Instruments*

*Role stressors* were operationalized in terms of role conflict and role ambiguity. Role conflict was measured by using five items (e.g., “I receive incompatible requests from two or more people”) from the role conflict scale developed by Rizzo, House, and Lirtzman (1970). Responses ranged from 1 (“Entirely true”) to 5 (“Entirely false”), with items being reverse coded before the scale total was computed. Alpha was .75 for this scale. Role ambiguity was measured by using five items from a scale developed by the same authors (Rizzo et al., 1970), with an example item being: “I know what my responsibilities are”. The response format was the same as for the role conflict scale. Alpha was .73 for this scale. When testing the hypothesised model, we used role conflict and role ambiguity as the two observed indicators of the role stressors construct.

*Workaholism* was measured by using the Dutch Workaholism Scale (Schaufeli et al., 2008). The tool investigates the two components of workaholism (i.e., working compulsively and working excessively) by means of two 5-item subscales. Example items are the following: “I feel that there’s something inside me that drives me to work hard” (working compulsively) and “I stay busy and keep many irons in the fire” (working excessively). Responses could range from 1 (“Never or almost never”) to 4 (“Almost always or always”). We obtained alpha of .73 for the working compulsively subscale, while we obtained an alpha of .54 for the working excessively subscale. Further analyses revealed that, by dropping one of the items of the working excessively subscale, alpha reached a level of .66, which is similar to that reported by previous research for this subscale (Schaufeli et al, 2009). We consequently retained only four items of the original

scale to measure the working excessively component.

*Workplace bullying* was investigated by using a shortened version (Balducci, Spagnoli, Alfano, Barattucci, Notelaers, & Fraccaroli, in press; Notelaers & Einarsen, 2008) of the Negative Acts Questionnaire (NAQ; Einarsen & Hoel, 2001). This version consists of nine items exploring how often the respondent has been subject to a number of negative behaviors at work, with responses varying from 1 (“Never”) to 5 (“Daily”). We obtained an alpha of .88. Three closely intercorrelated forms of bullying are explored by the scale (Balducci et al., in press), each investigated by three items: Work-related bullying (e.g., “Someone withholding information which affects performance”), Personal bullying (e.g., “Having insulting or offensive remarks made about your person”) and Social isolation (e.g., “Being ignored or facing a hostile reaction when you approach”). These three-item components were taken as the observed indicators of the underlying bullying construct.

*Abusive behavior* was investigated by the items composing the workplace bullying measure (see above), which were rewritten in terms of the actor perspective of aggression. For example the item “Someone withholding information which affects performance” was rewritten as “You have withheld information which affected someone’s performance at work”. Responses varied from 0 (“Never”) to 4 (“Daily”). By dropping two items from the original scale we obtained an alpha of .76. This 7-item version of the scale was further analysed to check whether the items could be modelled in terms of an underlying abuse factor. The results of confirmatory factor analysis in which the robust maximum likelihood estimator was used were the following:  $S-B^1 \chi^2(12) = 36.39$ ; GFI = .98; AGFI = .95; RMSEA = .068; NFI = .97; NNFI = .93; CFI = .98<sup>2</sup>. Factor loadings were all positive and statistically significant, varying from .47 to .69. Thus, the hypothesised 1-factor structure for our measure of abuse had an acceptable fit to the data.

### *Analytical strategy*

The hypotheses were tested by using structural equation modelling (SEM) analysis as implemented by LISREL 8.71 (Jöreskog & Sörbom, 1996). The hypothesised mediation effect of bullying in the relationship between role stressors and workaholism, on the one hand, and abuse on the other, was tested by following the procedure illustrated by Baron and Kenny (1986).

<sup>1</sup> Satorra and Bentler (2001) scaled chi-square.

<sup>2</sup> Three errors of items which in the original used version of the NAQ (see above) explore the same forms of bullying were allowed to correlate. In all the remaining analyses these error covariances were always estimated.

According to this procedure, mediation can be tested if the following preliminary conditions are all met: *a*) the predictor variables affect the dependent variable, *b*) the predictor variables affect the mediating variable, and *c*) the mediating variable affects the dependent variable. When these conditions are satisfied, an overall model including predictors, mediator and dependent variable can be tested, and if in this model the direct effects from predictors to the dependent variable are not significant, or are significantly reduced in comparison to the same effects as emerged in testing for condition *a*), then mediation is supported. To test for the interaction effects between role stressors and workaholism (Hypothesis 4), we used moderated structural equation modelling (MSEM; Cortina, Chen, & Dunlap, 2001). The MSEM model included three exogenous latent factors representing the independent variables of interest and their interaction, and two endogenous latent factors representing workplace bullying and abuse (for more details see below).

All the SEM analyses were run by using the robust maximum likelihood (RML) estimation method (Olsson, Foss, Troye, & Howell, 2000). Thus, the fit of the structural equation models was evaluated by using the scaled  $\chi^2$  statistic (Satorra & Bentler, 2001). In addition, a variety of other, more practical fit indices (Byrne, 1998; Tabachnick & Fidell, 2007) were also used. Models showing values of up to .08 at the RMSEA (Jöreskog & Sörbom, 1996) and values of .90 or higher for the NFI, NNFI and CFI (Bentler, 1992) are usually considered as acceptable. Models showing values of up to .06 at the RMSEA and values close to .95 at the NFI, NNFI and CFI are considered to have a good fit (Hu & Bentler, 1999).

## Results

### *Descriptives*

Descriptive statistics of the study variables and their intercorrelations (Pearson's *r*) are presented in Table 1.

Abuse is substantially related with the three measures of bullying, with *r* ranging from .36 (for abuse/work-related bullying) to .41 (for abuse/social isolation). Role conflict shows similar correlations with abuse and the three forms of bullying, while role ambiguity is correlated more closely with the three forms of bullying than with abuse – with which *r* is only .14. Interestingly, of the two indicators of workaholism, working excessively shows higher correlations with both abuse and the three forms of bullying than working compulsively does, suggesting that it is the

behavioral (and observable) component of workaholism which may be the most involved in the aggression phenomenon.

**Table 1.** Descriptive statistics of study variables.

	<i>M (SD)</i>	1	2	3	4	5	6	7	8
1- Abuse	0.41 (0.44)	–							
2- Work-related bullying	1.67 (0.72)	.36	–						
3- Person-related bullying	1.54 (0.72)	.39	.66	–					
4- Social isolation	1.38 (0.59)	.41	.62	.74	–				
5- Role ambiguity	2.08 (0.61)	.14	.32	.25	.24	–			
6- Role conflict	2.91 (0.90)	.26	.30	.35	.29	.43	–		
7- Work excessively	2.24 (0.64)	.26	.30	.26	.24	.13	.22	–	
8- Work compulsively	1.98 (0.62)	.18	.22	.21	.23	.15	.13	.51	–

*Note.* All correlations are statistically significant at  $p < .01$ .

#### *Preliminary SEM analyses*

Before running mediation and moderation analyses, we conducted some preliminary SEM analyses. Specifically, we tested for whether a one-factor model with all study variables loading on a single common method factor (e.g. Chan, 2009) would fit better than a four-factor model including the hypothesised factors, i.e. role stressors, workaholism, workplace bullying and abuse – see Method section for how these factors were operationalized. The fit of the one-factor model was not adequate: S-B  $\chi^2(74) = 355.78$ ; GFI = .88; AGFI = .83; RMSEA = .100; NFI = .84; NNFI = .84; CFI = .87. By contrast, the fit of the four-factor model was adequate: S-B  $\chi^2(68) = 104.87$ ; GFI = .96; AGFI = .94; RMSEA = .039; NFI = .95; NNFI = .98; CFI = .98. Factor loadings for the latter model were all significant, ranging from .39 to .87. We therefore concluded that, instead of loading on a single factor, the study variables loaded, as expected, on the four factors hypothesised by our research model.

#### *Mediation analysis*

Table 2 displays the results of a series of SEM models with which we tested the first three hypotheses.

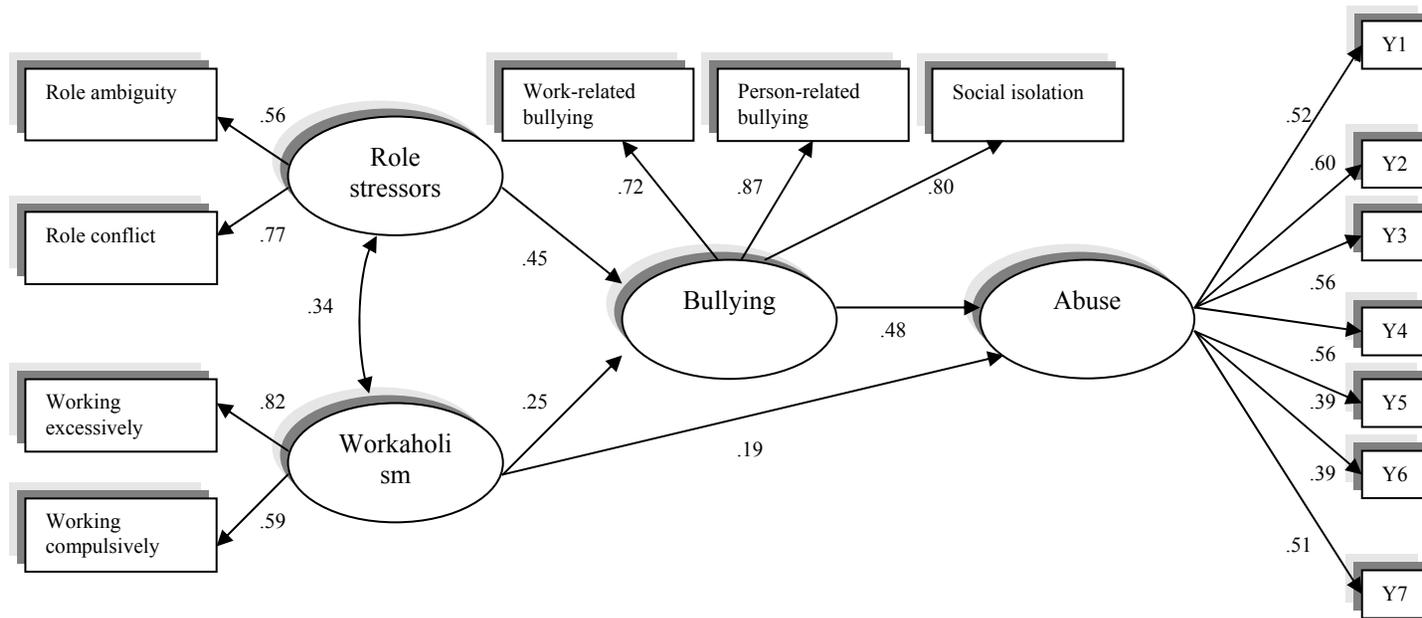
**Table 2.** Results of SEM analysis.

	S-B $\chi^2$	<i>p</i>	df	GFI	AGFI	RMSEA	NFI	NNFI	CFI
M1 (abuse on role stressors and workaholism)	59.04	<i>p</i> = .01	38	.97	.95	.038	.94	.97	.98
M2 (bullying on role stressors and workaholism)	19.76	<i>p</i> = .05	11	.99	.96	.046	.98	.98	.99
M3 (abuse on bullying)	45.93	<i>p</i> = .04	31	.98	.96	.034	.98	.99	.99
M4 (full mediation of bullying)	113.24	<i>p</i> = .001	70	.96	.94	.041	.95	.97	.98
M5 (partial mediation of bullying on the role stressors-abuse relationship)	110.63	<i>p</i> = .001	69	.96	.94	.041	.95	.97	.98
M6 (partial mediation of bullying on the workaholism-abuse relationship)	106.15	<i>p</i> = .003	69	.96	.94	.039	.95	.98	.98
M7 (moderation of workaholism: main effects only)	97.89	<i>p</i> = .002	61	.96	.94	.041	.95	.97	.98
M8 (moderation of workaholism: main and interaction effects)	85.72	<i>p</i> = .016	60	.97	.95	.034	.96	.98	.99

*Note.* S-B  $\chi^2$  = Satorra-Bentler scaled  $\chi^2$ .

Model 1 (M1) – the direct effect model, with role stressors and workaholism impacting on abuse – had a quite good fit with the data. As hypothesised, role stressors (Hypothesis 1) and workaholism (Hypothesis 2) had a positive statistically significant effect on abuse:  $\gamma = .28, p < .05$  and  $\gamma = .29, p < .05$ , respectively. Model 2 – testing for the effect of role stressors and workaholism on workplace bullying – had an excellent fit with the data and showed that both role stressors ( $\gamma = .44, p < .05$ ) and workaholism ( $\gamma = .26, p < .05$ ) had a positive impact on workplace bullying. Model 3 – testing for the effect of workplace bullying on abuse – also had a good fit with the data and revealed that bullying had a statistically significant positive effect on abuse ( $\gamma = .54; p < .05$ ). Thus, these analyses verified all the preliminary conditions for testing the mediating effect of bullying in the relationships between role stressors and workaholism, on the one hand, and abuse on the other.

A full mediation model (M4) was then fitted to the data and compared with two partial mediation models: one in which a direct effect from role stressors to abuse was added (M5), and one in which a direct effect from workaholism to abuse was added (M6). Table 2 shows that the full mediation model (M4) fitted well with the data. Model 5, in which a direct path from role stressors to abuse was added, did not fit statistically significantly better than Model 4 as indicated by the Satorra and Bentler (2001) scaled  $\chi^2$  difference test:  $S-B\Delta\chi^2(1) = 2.88, n.s.$  However, Model 6, in which a direct path from workaholism to abuse was added, fitted statistically significantly better than Model 4,  $S-B\Delta\chi^2(1) = 17.84, p < .01$ . Thus Model 6, which is graphically represented in Figure 2, is the best fitting model. In this model, role stressors ( $\gamma = .45; p < .05$ ) and workaholism ( $\gamma = .25; p < .05$ ) have a significant effect on workplace bullying; and workplace bullying ( $\gamma = .48; p < .05$ ) and workaholism ( $\gamma = .19; p < .05$ ) have a significant effect on abuse. It is of interest that the direct effect of workaholism on abuse in Model 5 ( $\gamma = .19$ ) is lower than the same effect as emerged from Model 1 ( $\gamma = .29$ ). Hence, overall, we provide substantial support for Hypothesis 3, namely that bullying mediates the relationship between role stressors and workaholism, on the one hand, and abusive behavior on the other.



*Note.* All the paths are statistically significant at  $p < .05$ .

**Figure 2.** Parameter estimates of the final model (M6).

### *Moderation analysis*

To test for Hypothesis 4, which concerns the strengthening effect of workaholism in the process leading from role stressors to abuse, we built on the mediation model supported in the previous analyses (see Figure 2). We thus tested a SEM model in which role stressors, workaholism and their interaction affected workplace bullying, which in turn affected abusive behavior. We tested Hypothesis 4 by using moderated structural equation modelling (MSEM), following the procedure outlined by Mathieu, Tannenbaum, and Salas (1992). This procedure is described in detail by Cortina et al. (2001). The MSEM model on which we focused included three exogenous latent factors (i.e. role stressors, workaholism, and their interaction) and two endogenous latent factors (i.e. workplace bullying and abuse). The endogenous factors were operationalized in the same manner in which they had been operationalized for the previous analyses, i.e., workplace bullying by three observed indicators and abuse by seven observed indicators. The exogenous factors had only one observed indicator each. The indicator for each of the interacting factors was derived by summing the scores on the items involved in the definition of the factor (e.g., for the role stressors factor, by summing together the scores on the role conflict and role ambiguity items). The score obtained was then standardized. The indicator for the interaction factor was the product of the two standardized scores measuring the interacting factors. The path from each latent exogenous factor to its indicator was fixed by using the square root of the reliability of the indicator. The reliabilities of the indicators for the interacting factors were estimated by means of the indicators' alphas. The reliability of the indicator for the interaction factor was calculated by taking the product of the reliabilities of the interacting factors' indicators, plus the square of their latent correlation, divided by one plus the square of the same latent correlation just mentioned. The formula for the latter calculation as reported by Cortina et al. (2001) is the following:

$$r_{\xi_1, \xi_2 * \xi_1, \xi_2} = [(r_{\xi_1 * \xi_1} * r_{\xi_2 * \xi_2}) + r_{\xi_1 \xi_2}^2] / (1 + r_{\xi_1 \xi_2}^2)$$

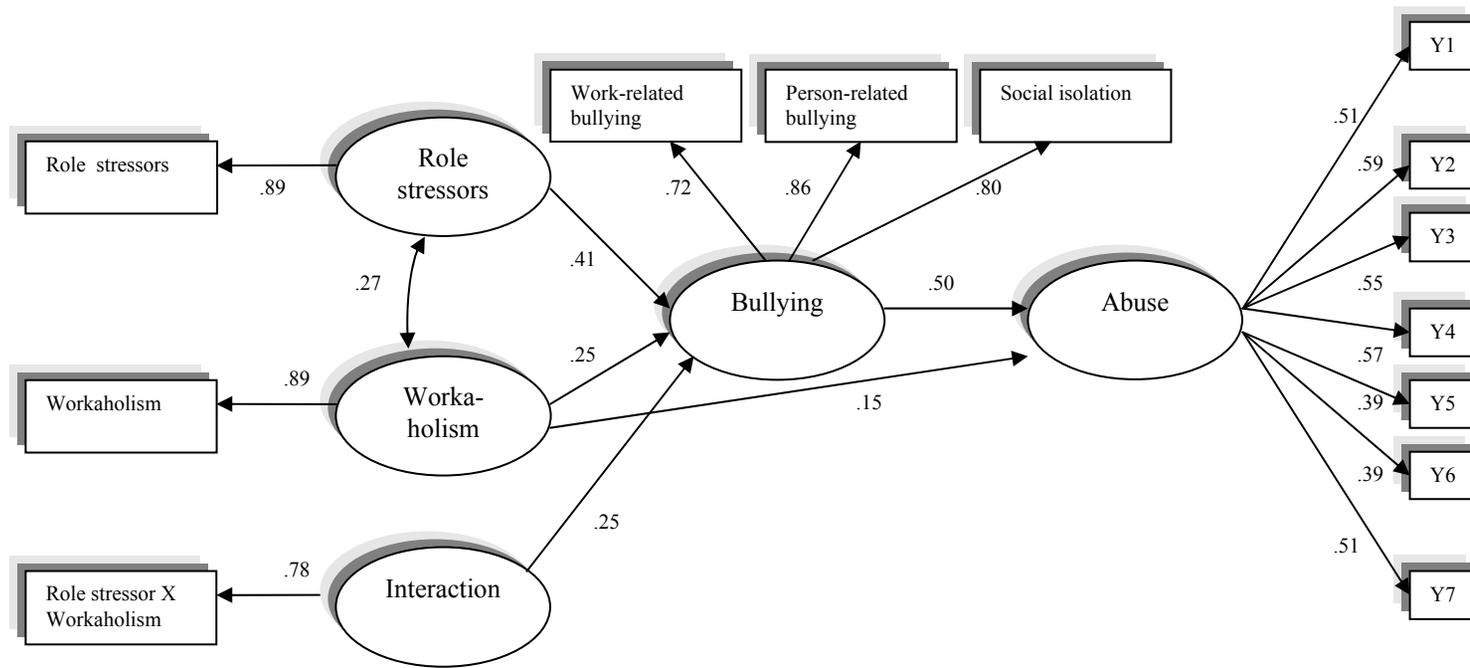
The error variance of each observed indicator was set equal to the product of its variance and one minus its reliability. The correlation between each of the two interacting factors and the factor representing the interaction was fixed at zero (Cortina et al., 2001). A significant interaction effect is supported when the path coefficient from the latent interaction factor to the

target latent endogenous factor is statistically significant and the model including this path fits significantly better than the model which does not include it.

Table 2, Models 7-8, reports the results for the moderation analysis. A comparison between Model 7 and Model 8, which differed by the inclusion in Model 8 of a direct path from the interaction factor to the bullying factor, revealed that Model 8 fitted statistically significantly better than Model 7 ( $S-B\Delta\chi^2(1) = 5.28, p < .05$ ), explaining 5% more variance on workplace bullying and 1% more variance on abuse. Importantly, parameter estimates in Model 8 indicated that the path from the interaction factor to the bullying factor was statistically significant and in the expected direction ( $\gamma = .24; p < .05$ ). A graphical representation of Model 8 is given in Figure 3. Simple slope analysis (Figure 4) clearly shows that, when workaholism was higher, the effect of role stressors on bullying was stronger, indicating that workaholism has a strengthening effect in the hypothesised process leading to abuse.

### **Discussion**

Research on workplace aggressive behavior has tended to focus either on the target of aggression or on the actor of aggression in seeking to unravel the causes and consequences of the phenomenon (Fox & Spector, 2005). But the two perspectives have rarely been integrated to gain a more complete and perhaps closer-to-reality understanding of the dynamics of workplace aggression. This is so even if it has been theorized (Anderson & Pearson, 1999) that being the target of aggressive behavior is strictly related to becoming an actor of aggression. Thus, building upon well-established human aggression theory (Neuman & Baron, 2005), the present study has tested a model hypothesising that work-environmental factors and personal factors trigger abusive behavior, and that being the target of bullying acts as a mediator. Furthermore, following an interactionist perspective (see, e.g. Hershcovis et al., 2007), the effect of the interaction between work-environmental factors and personal characteristics in the hypothesised process leading to abuse has also been explored.



Note. All paths are statistically significant at  $p < .05$ .

**Figure 3.** Parameter estimates for the model including the role stressor-workaholism interaction (M8).



**Figure 4.** Simple-slope analysis of interaction between role stressors and workaholism on workplace bullying.

In line with the stressor-emotion model of counterproductive work behavior (Fox et al., 2004) and with the proposed hypotheses (Hypothesis 1 and Hypothesis 2), we found that job stressors and personal characteristics were both uniquely and positively related to abuse. As far as job stressors are concerned, we focused on a measure of role stressors to which both role conflict and role ambiguity contributed. There is ample evidence concerning the effect of role ambiguity and role conflict on different forms of counterproductive work behavior, including abusive behavior (Spector & Fox, 2005). This is confirmed in the recent review on workplace aggression and violence by Barling, Dupré, and Kelloway (2009), which reports that role ambiguity and role conflict, together with other forms of organizational constraints which impede performance (e.g. lack of proper equipment to carry out the job), predict the enactment of aggression, most probably through the experience of negative emotions such as anger and anxiety. Of perhaps greater interest is that workaholism, defined in terms of working excessively and working compulsively (Schaufeli et al., 2008), is also uniquely related to abuse, indicating that individuals with higher levels of this personal vulnerability factor report that they engage more frequently in abusive behavior against others. Workaholism has been investigated in relation to a number of different organizational outcomes, including burnout (Andreassen, Ursin, & Eriksen, 2007; Schaufeli et al., 2009), subjective well-being (Aziz & Zickar, 2006), and job satisfaction (Burke, 2001). However, studies linking workaholism to behavioral outcomes such

as abuse are not available, at least to our knowledge. Hence this is an original contribution of the present study.

Substantially in line with Hypothesis 3, we found that being the target of bullying behavior mediated the relationship between role stressors and workaholism, on one hand, and abuse on the other. The results indicated that the entire effect of role stressors on abuse was mediated by workplace bullying, while bullying only partially mediated the effect of workaholism on abuse. These results are consistent with the view that both poor working conditions and (to a lesser extent) personal vulnerability may give rise to bullying at work, which in turn may trigger counteraggression. Previous research has revealed that being the target of bullying behavior (Lee & Brotheridge, 2006) is an important predictor of abuse against others. Furthermore, previous research has also revealed that certain working conditions, such as role conflict and role ambiguity, may lead to bullying (Skogstad et al., 2007) and that personal vulnerability may be an important risk factor for being bullied (e.g. Coyne et al., 2000). However, an overall test of the entire chain of relationships leading from working conditions and personal factors to bullying and from bullying to abuse has not been previously attempted.

The results of the present study support the notion of an incivility spiral (Anderson & Pearson, 1999) whereby undergoing negative behavior triggers abuse against others. Furthermore, the results support the view that the spiral may be initiated independently by poor working conditions and by certain personal characteristics. But how may this process develop in practice?

As initially suggested by Leymann (1990a; 1996) and then empirically supported by other researchers (Hodson et al., 2006; Skogstad et al., 2007), poor psychosocial conditions, such as unclear tasks and incompatible demands, may trigger a conflict situation, for example between co-workers. If the conditions generating the conflict are not resolved, they may exacerbate it by continuously fuelling stress reactions in the individuals involved. In this situation, repeated perceived wrongdoing may exponentiate the effect of working conditions on the experience of negative affective states such as anger, anxiety and fear, which are the immediate antecedents of abusive behavior (Fox et al., 2004). As an alternative interpretation, it may also be hypothesised that if role conflict and role ambiguity, which are social stressors in nature since they concern the characteristics of messages from other people at work (Bowling & Beehr, 2006), are chronically present, they may lead to a sinister attributional bias (Kramer, 1994) and be built as bullying behavior. In other words, in the longer run, role stressors can be appraised as constraints

intentionally created by others. This, in turn, is accompanied by emotionally critical internal states (Neuman & Baron, 2003) which lead to abuse against others.

A similar path to abuse may be independently initiated by workaholism, which involves the tendencies of working excessively hard and of being motivated by an inner drive to work (Schaufeli et al., 2008). Crucially, workaholics have been found to make their work more complicated than necessary, and to create difficulties for their co-workers (Porter, 2001), which may expose them to a high risk of being the targets of negative behaviors by others, including colleagues, the supervisor, and perhaps even subordinates. For example, co-workers may isolate them and may start spreading rumours about them at work, which are typical bullying behaviors. This would lead to counteraggression on the part of the workaholic person.

In line with Hypothesis 4, we found that the inclusion in the final model of an interaction between role stressors and workaholism had added explanatory power on workplace bullying. The results indicated that when workaholism was higher, the relationship between role stressors and bullying was substantially stronger than when workaholism was lower. In other words, workaholism strengthened the effect of role stressors in the path to abusive behavior. This indicates that, under poor working conditions, individuals with workaholic tendencies may be at particularly high risk of becoming targets of bullying and of engaging in abuse against others as a consequence. The effect of the interaction was not strong; however, it did account for 5% variance more on workplace bullying, an effect that is not small for social science research (Cohen, Cohen, West, & Aiken, 2003). Furthermore, the same interaction also accounted for a 1% variance more on abuse, meaning that the added value of the role stressor-by-workaholism interaction could also be detected in the final outcome of the model tested, namely abusive behavior. Previous research has shown that a number of personality variables may be of importance in understanding aggressive behavior at work, for example negative affectivity, trait anger and trait anxiety (Barling et al., 2009). The present study has shown that also workaholism may be of importance. It should be stressed that workaholism may have increasing importance for understanding individual adaptation to the modern world of work, which is characterised by a lack of clear boundaries delimiting work and its performance (Allvin, 2008), a situation in which the low self-regulative capacity of workaholics may cause them great suffering.

Of course, it is necessary to emphasise that the model supported in the present study may illustrate only one way in which being the target of aggressive behavior is related to becoming an actor of it. It merely shows some of the critical linkages between the relevant phenomena. It is

equally possible that working conditions and personal factors lead to abuse, and hence to being the target of bullying by others. It is also very likely that reciprocal relationships exist: for example, between being the target of bullying and engaging in abusive behavior. However, it should also be noted that the model supported in the present study has solid theoretical bases (Anderson, 1997; Neuman & Baron, 2003; 2005). Furthermore, it builds upon available evidence which suggests that working conditions may indeed lead to subsequent bullying (De Raeye et al., 2008), and that being the target of negative behavior at work (e.g. bullying) is the strongest predictor of abuse against others (for a review on this see Spector & Fox, 2005).

In conclusion, the present study has made an original contribution to the literature on aggressive behavior at work by showing that the perspective of the target of aggression may be integrated with the perspective of the actor of aggression, and that this may yield a more complete understanding of the dynamics of workplace aggression. Specifically, while previous research has examined single linkages between working conditions and/or personal factors and abuse (e.g. Fox et al., 2001), and between working conditions and/or personal factors and bullying (e.g. Coyne et al., 2000; Skogstad et al., 2007), the present study has successfully tested a more complex model in which being the target of bullying mediated the relationships between working conditions and personal factors, on the one hand, and abuse on the other. Furthermore, while previous research has mostly focused on the main effects of antecedents of aggressive behavior (Hershcovis et al., 2007), the present study has confirmed the added value of an interactionist perspective, where the effect of working conditions on aggressive behavior may be amplified by personal factors.

### *Limitations*

The main limitation of the present study is that it has been cross-sectional in nature, meaning that the relationships between the variables considered should not be interpreted causally. A rigorous test of mediation would require a three-wave longitudinal study (Taris & Kompier, 2006). However, as we explained above, the present study tested hypotheses derived from robust theories in the area of human aggression (i.e. the general affective aggression model: Anderson, 1997) and work-related stress (Spector & Fox, 2005), as well as from evidence based on longitudinal data (e.g. De Raeye et al., 2008). We therefore have a certain degree of confidence that the present findings could be replicated longitudinally.

The other important limitation of the study is that all the data are based on self-reports, which means that the quantification of all the phenomena investigated is based on individual appraisal (Lazarus & Folkman, 1984). This may inflate the correlations between variables due to common method variance (Spector, 2006). It is true that methodological heterogeneity (Nunnally & Bernstein, 1994) would be a strength for research in this area. However, it is also true that the effect of common method variance should be evaluated case by case, since it cannot be assumed that it always inflates relationships between psychosocial phenomena (Spector, 2006). For example, one powerful source of common method variance is social desirability. However, if social desirability affects the constructs of interest in different directions, it is possible that their relationships are underestimated rather than being overestimated (Chan, 2009). In the present study, while social desirability could have caused an underreport of abusive behavior and perhaps also of bullying behavior, this should not be the case of the report of role stressors. Hence, it is also possible that the relationships found by the present study between role stressors and aggressive behavior are underestimates of the actual ones. In any case, we took practical steps to minimize social desirability, for example by making the participation in the study voluntary, and by implementing anonymity in data collection. Furthermore, a statistical check was conducted to determine whether the hypothesised constructs could be clearly differentiated empirically before estimating their structural relationships, with results confirming that the hypothesised four-factor measurement model fitted better than a one-factor model accounting for common method. In brief, we believe that common method variance may have affected the results reported but perhaps not to the extent of giving rise to false-positive phenomena or substantially inflating relationships between variables.

### *Practical implications*

The present study suggests that the prevention of workplace aggression may be based on work-environmental factors and personal factors. In other words it seems possible and perhaps desirable to use both primary (Semmer, 2003) and secondary (Quillian-Wolever & Wolever, 2003) prevention. As far as primary prevention is concerned, clarifying tasks and responsibilities and preventing workers from being caught in the crossfire of incompatible demands seem to have a protective effect on the trigger of the aggression phenomenon. Role stressors are ‘classical’ psychosocial risks in organizations (Cox, Griffiths, & Rial-González, 2000) and their prevention should focus on supervisors and managers. For example, Quick (1979) showed that goal-setting

by supervisors significantly reduced role conflict and role ambiguity in subordinates. Other studies (e.g. Schaubroeck, Ganster, Sime, & Ditman, 1993), reviewed by Semmer (2003), in which role clarification was pursued, also showed some beneficial effects on employees. Thus, implementing the control cycle for stress at work (Cox et al., 2000) may have positive effects for the prevention of workplace aggression, including both bullying and abusive behavior. As far as secondary prevention is concerned, Schaufeli et al. (2009) suggest that workaholic behavior may be limited by training supervisors to pay attention to the work habits of their subordinates, and to encourage them to maintain a balanced life. This should defuse the path to aggressive behavior started by workaholism. Furthermore, Schaufeli et al. (2009) suggest that workaholics could also be referred to an occupational physician for personal counselling or to employee assistance programs, if available. Of course, this entails that workaholics must be understood as individuals with self-regulative psychological and behavioral problems, which is not always the case. This means that, at present, there is a strong need to disseminate adequate knowledge on the potential costs of this vulnerability factor, which is still infrequently identified as such.

## Chapter 7

### General discussion

This thesis was designed to tackle what is apparently a widespread phenomenon in modern organizations, namely aggressive behavior at work (Barling, Dupré & Kelloway, 2009; Schat & Kelloway, 2005). Workplace aggression has received increasing attention in the last 10 to 15 years, with researchers focusing on either the experiences of targets of aggression or the experiences of actors/perpetrators. This gave rise to two quite distinct streams of research and only recently (Fox & Spector, 2005) attempts have been made to bring the emerged findings together, with the aim of gaining a more complete understanding of the phenomenon.

This thesis investigates aggressive behavior at work from both the target's perspective and the actor's perspective. As far as the targets of aggression are concerned, the thesis focuses on workplace bullying (Einarsen, Howl, Zapf, & Cooper, 2003) with the aim of exploring a number of controversial issues concerning the phenomenon. First was the much debated issue of the relationship between bullying and personality. Despite there is a widespread belief among both researchers and practitioners (e.g., Zapf & Einarsen, 2005) that individuals with certain personal characteristics may be more likely to become victims of bullying, rarely has a comprehensive clinical assessment of the victims' personality been carried out (e.g., Gandolfo, 1995; Girardi, Monaco, Prestigiaco, Talamo, Ruberto, & Tatarelli, 2007). Secondly, the measurement of bullying was focused on, with the aim of developing a short measure of exposure to the phenomenon based on the Negative Acts Questionnaire-Revised (Einarsen, Hoel, Notelaers, 2009), which is currently the most used tool at international level to measure workplace bullying. Thirdly, the issue of the development of bullying was investigated, by contrasting the contribution to bullying of work-environmental factors (Leymann, 1990a, 1996) with that of personal factors (Zapf & Einarsen, 2005).

To broaden the perspective on workplace aggression, the thesis then concentrates on the actors of aggression and explores some still under-researched issues. The primary objective was to test the strength of the stressor-emotion model (Spector & Fox, 2005) of abusive behavior at work, according to which abuse may be a direct consequence of job-related negative affect generated by poor working conditions. Finally, building upon the concept of "incivility spiral" (Anderson & Pearson, 1999), the thesis tries to integrate the target's and the actor's perspectives of aggressive behavior at work. This was done by testing a model of abusive behavior, where the

starting points were again work-environmental and personal factors and being the target of bullying acted as a mediating process.

### *Summary of main results*

The first empirical chapter of the thesis (Chapter 2) investigates the Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) profile of victims of bullying who sought clinical consultation and the relationship between the emerged profile and a measure of exposure to bullying. In line with the proposed hypothesis, results showed that victims of bullying had an abnormal MMPI-2 personality profile, which was characterised by a tendency towards the somatisation of psychological conflicts and a strong paranoid cognition. Strikingly, the profile was almost identical to that which emerged in some previous studies (e.g., Girardi et al., 2007). While this profile is indicative of a long history of psychological problems, perhaps predating the bullying (Zapf & Einarsen, 2005), Chapter 2 also shows positive correlations between a measure of exposure to bullying and the MMPI-2 elevations. This was contrary to what found previously (Matthiesen & Einarsen, 2001) and points to the possibility that the personality alteration follows, rather than anticipates, the bullying. Another notable result of Chapter 2 is that exposure to bullying was significantly positively correlated with suicidal thoughts and behavior, lending support to the hypothesis initially proposed by Leymann (1990a) that bullying may lead to suicide of the victim, which was never tested empirically before.

Chapter 3 of thesis is devoted to a psychometric analysis of the Negative Acts Questionnaire-Revised (NAQ-R; Einarsen et al., 2009) with the aim of developing a short version of the tool. The availability of short scales with sound psychometric properties is essential for research in organizational settings, because in most applications a multiplicity of constructs have to be measured in a single data collection occasion. Results based on organizational data revealed that the 22-item NAQ-R could be reduced to a 9-item scale, the Short Negative Acts Questionnaire (S-NAQ), which showed good psychometric properties, similar to that of the longer tool. A three-factor solution of the S-NAQ better described the data than a one-factor solution, with the three differentiated components of bullying being work-related bullying, personal bullying and social isolation. However, the high correlations between the three confirmed factors (average  $r = .90$ ) suggests that the S-NAQ may also be used as a single overall measure of bullying. Unfortunately, analysis of the S-NAQ replicated on a clinical

sample of participants was less clear in their results. The three-factor solution of the S-NAQ was again superior in terms of fit to the one-factor solution; however a fit index (i.e. the RMSEA) showed a too high value in both cases. This could have well depended on the small size of the clinical sample ( $n. = 180$ ). However, finally it was not possible to reach an uncontroversial conclusion in favour of the configural invariance of the S-NAQ in the two contexts of possible use.

Chapter 4 of the thesis develops and tests a model of bullying where bullying was conceptualized as an interpersonal correlate of job stress. Thus job stress inducing factors such as job demands and family-to-work conflict, together with the personality factor of neuroticism, were considered as risk elements for bullying, while job resources such as social support were considered as protective elements. In line with the hypotheses, results demonstrated that bullying behaved as a typical outcome variable of the stress process: it was positively related to job demands such as role conflict and workload, and negatively related to job resources such as social support and decision authority. Bullying was also positively related to neuroticism and to family-to-work conflict. Furthermore, job resources mitigated the effect of job demands and of family-to-work conflict on bullying. It is important to underline that, in the final model, both neuroticism and work-environmental factors were independently related to bullying, which supports the notion that both work-environmental factors (Leymann, 1990a; 1996) and personal factors (Zapf & Einarsen, 2005) may be of relevance in the development of bullying. However, results also revealed that the effect of work environmental factors such as job demands and job resources on bullying was much stronger than the effect of neuroticism, suggesting that primary prevention of bullying may indeed make sense. Another original result of Chapter 4 was that bullying mediated the effect of job demands and job resources, on one hand, and Post Traumatic Stress Disorder (PTSD) symptoms on the other. The latter is a particularly original result, since previous research studied the relationship between bullying and PTSD only by using non-organizational data.

In Chapter 5 of the thesis the experiences of actors of aggressive behavior at work were focused on. One of the objectives for this shift of perspective was to see whether, by using a point of view potentially independent from that of the targets of aggression, factors and processes implicated in workplace aggression that emerged from targets could be confirmed. This is consistent with the principle of method heterogeneity (Nunnally & Bernstein, 1994), i.e. investigating the same phenomenon from different facets and with different methodologies. The

main aim of Chapter 5 is to provide a comprehensive test of the stressor-emotion model (Spector & Fox, 2005) of abusive behavior at work. This model postulates a causal chain from certain working conditions to negative emotion to abusive behavior. Furthermore, the model postulates that job resources, particularly control over work and personality factors, may act as moderators in the hypothesised abuse causal chain. Results were in line with the crucial hypothesis of the stressor-emotion model, that job-related negative affect mediates the relationship between poor working conditions and abusive behavior. In other words, it indeed seems that the effect of job demands on abusive behavior is carried by negative emotion. Results also provided substantial support for the strengthening effect of personality (i.e. neuroticism) in the abuse causal chain, indicating that it is particularly in highly neurotic individuals that job demands generate negative emotions and, as a consequence, abusive behavior. However, very modest evidence emerged for a moderating effect of job resources. The only job resource which showed some moderating effect was autonomy, which is a form of control over work. This is in line with what is predicted by the stressor-emotion model. However, autonomy only moderated the effect of role conflict in the experience of job-related negative affect, while no moderating effect of autonomy emerged as far as role ambiguity and *laissez-faire* leadership style were concerned. This is too modest evidence in favour of the importance of control over work in the stressor-emotion path to abusive behavior.

Chapter 6 of the thesis tries to integrate the experiences of targets and actors of aggression within the same model. While this integration has strong theoretical justifications (Anderson & Pearson, 1999), it has rarely been attempted before. Building upon previous chapters of the thesis, where the point of view was supported that suffered aggression and acted aggression may have the same potential work-environmental and personal antecedents, a model incorporating bullying and abusive behavior was tested. In this model work-environmental and personal factors were hypothesised to impact on the engagement of abusive behavior, with workplace bullying acting as a mediating process. Results were in line with the view that work environmental factors (role stressors) and personal factors (workaholism) may independently trigger the aggression causal chain leading to abuse, and that workplace bullying may act as a mediator. Furthermore, an interactive perspective (Hershcovis, Turner, Barling, Arnold, Dupré et al., 2007) was also supported, where workaholism strengthened the effect of role stressors in the aggression causal chain. It should be clearly underlined that the supported relationship between bullying and abuse is only a way in which the two phenomena may be related. Strong theoretical reasons (see, for

example, Neuman & Baron, 2005) and some empirical evidence (Lee & Brotheridge, 2006) support the notion that targets of bullying may engage in abusive behavior against others. Incidentally, this may be functional from an individual point of view, because by engaging in counter-aggression the negative emotion aroused by being bullied may in some way be released. However, it is equally possible that individuals engaging in abusive behavior may, as a consequence, be bullied by others. The crucial point to be understood, however, is that aggression may bring about further aggression, which is in line with the concept of incivility escalation at work (Anderson & Pearson, 1999).

Overall, the results of this thesis and especially those emerging from chapters 4 to 6 strongly point to the potential of certain working conditions to trigger the aggression causal chain. This has important implications for the prevention of aggressive behavior at work. Before discussing the implications for practice of the obtained results, however, some important limitations of the thesis should be further acknowledged.

### *Limitations*

The most important concern for the studies included in this thesis is that none of them was longitudinal in nature. It may seem rhetorical, however it is important to underline once again that to explore causal relationships between phenomena it is essential to have available longitudinal or experimental data. For a number of reasons it was not possible to obtain such data for this thesis. It should be noted that studies based on longitudinal data in this area are still very rare. This also has to do with the fact that aggression at work is a very ‘hot topic’, which has a number of legal implications. So it is very difficult to access organizations to study phenomena such as bullying or abuse. As far as workplace bullying is concerned, for example, it was possible to trace only one longitudinal study (Kivimäki, Virtanen, Vartia, Elovainio, Vahtera et al., 2003). Another study of this kind was also recently published (De Raeve, Jansen, van den Brandt, Vasse, & Kant, 2008), in which however the focus was on conflict at work rather than bullying. This is not a justification of course; however it does testify the difficulty of implementing longitudinal research in this area. In an effort to give plausible causal reasoning based on cross sectional data, the tested models were built upon solid theories on human aggression (e.g. Anderson & Pearson, 1999) and on the few available longitudinal studies (De Raeve et al., 2008). However, there is still a dramatic need for longitudinal investigations, which is the most important suggestion that can be made for future research in this area.

A second important concern for the studies included in this thesis is the generalisation of the findings. To deal with this problem, different samples of participants from different occupational sectors were built. Importantly, the two occupational sectors where aggressive behavior seems to be more of a problem, i.e. public administration and the health sector (European Foundation, 2007), were included. Furthermore, a clinical sample of participants was also included. However, it remains to be seen whether the findings that emerged from the studies included in this thesis can be generalised to other occupational sectors, such as hotels and restaurants, where aggressive behavior is also a very prevalent phenomenon (European Foundation, 2007). Thus, another avenue for future research would be to replicate the findings of this thesis on samples of workers from other occupations. For example, an interesting idea would be to apply multi-sample analysis, to see whether the same theoretical model linking working conditions and personal factors to aggressive behavior could be invariant in different occupational sectors. This would be strong evidence to support the hypothesised processes leading to aggressive behavior at work.

### *Implications for practice*

The relationship that emerged between workplace bullying and suicide (see Chapter 2) is of great concern and suggests that the prevention of bullying should receive high priority in organizations. On the basis of the results reported in Chapter 4 and Chapter 6 it seems that bullying could be prevented by controlling job demands, especially hindrance demands (Podsakoff, LePine, & LePine, 2007) such as role stressors and *laissez-faire* leadership style, and by promoting job resources such as social support and decision authority. These interventions should minimize the experience of work-related stress, which seems to be implicated in the development of interpersonal conflicts and bullying.

However, primary prevention may be less effective in those situations of interpersonal conflict that have already escalated into bullying. In such situations the employee concerned may already experience post-traumatic stress symptoms and perhaps even suicidal thoughts. This means that secondary prevention should also be available, for example a counselling service for employees where expert advice and perhaps psychological support are given (Tehrani, 2003). Formal and informal procedures to deal with bullying situations as part of internal policies on workplace aggression could also be implemented (Richards & Daley, 2003). These procedures, for example, could provide for the separation of the conflicting parties, which may be a last but

nonetheless important *ratio*. It should be noted that the presence of a policy on workplace aggression and bullying may be important not only to deal with extreme situations of conflict, but also as a primary prevention strategy. This is because the presence of a policy may get the message over to employees that the management is concerned with aggressive behavior at work, which may contribute to creating a climate that is against the phenomenon (Kessler, Spector, Chang, & Parr, 2008; Spector, Coulter, Stockwell, & Matz, 2007).

Training courses aiming at raising awareness on the topic of workplace aggression could also prove very useful, since through them employees may understand what conditions lead to bullying and abuse against others and then make a more accurate appraisal of their working situation. This could lead employees to take prompt and appropriate action in case of need, for example by asking for external help from the supervisor or the occupational physician, when not from co-workers, when they are involved in interpersonal conflicts. Escalated conflicts including aggression and counter-aggression often develop because there is a delay in taking appropriate action, thus information and training may be particularly useful for stopping this escalation.

Information and training on workplace aggressive behavior could also benefit managers, most of whom are rarely able to detect early signs of triggering factors for aggression in their subordinates and the work environment. Proper training could, for example, help managers identify and defuse negative emotions in their subordinates. Too often, at the moment, managers adopt a *laissez-faire* leadership style when faced with problematic relationships among their subordinates. A *laissez-faire* leadership style has been shown not to be zero leadership (Skogstad, Einarsen, Torsheim, Aasland, & Hetland 2007), but a destructive form of leadership which may further complicate the already difficult situation.

Finally, a very important first step for preventing workplace aggression is conducting a comprehensive psychosocial risk assessment in organizations (Cox, Griffiths, & Rial-González, 2000; WHO, 2008). In most European countries, such as Italy, it is now mandatory for organizations, following the emanation of specific legislation, to conduct an assessment of factors leading to work-related stress. This means it is now possible to map prevalence and health correlates of specific psychosocial risks, including aggressive behavior. Furthermore, factors which are most related to aggressive behavior and its consequences in the focused organization may be empirically identified, with the consequence that priorities may be set for the subsequent preventive actions. Finally, periodic risks assessment means that the work environment is monitored over time, which also makes it possible to evaluate the effectiveness of the

implemented actions. Therefore, psychosocial risks assessment has the potential to be a strategic tool against the emergence of aggressive spirals in organizations.

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### **Curriculum Vitae**

I was born in 1973 in Ancona (Italy). I graduated in Psychology–Work and Organizational Psychology (summa cum laude) in March 1998 at the University of Urbino (Italy). I became chartered psychologist in 2000. In the same year I obtained a scholarship from the University of Padova, by which I took the Master of Science (MSc) in research methods in Psychology at the University College London (UCL – University of London). Subsequently I worked at the University of Verona (Department of Psychology) for one year. I then moved at I.N.R.C.A. (a public research institution), working in two different European research projects (European Study on Adult Well-being and Eurofamcare), particularly focusing on the development of the survey tools and on data analysis. In 2006 I was admitted to the PhD in Cognitive and Education Sciences at the University of Trento, receiving a PhD scholarship from the same university. In 2008-2009 I spent a six-month period of study at the University of Utrecht (Department of social and organizational Psychology). I'm researcher in Work and Organizational Psychology at the University of Bologna since January 2009.