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Publisher: Psychology Press

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Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



European Journal of Work and Organizational Psychology

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/pewo20>

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Version of record first published: 22 Nov 2011.

To cite this article: Laura Borgogni, Chiara Consiglio, Guido Alessandri & Wilmar B. Schaufeli (2012): "Don't throw the baby out with the bathwater!" Interpersonal strain at work and burnout, *European Journal of Work and Organizational Psychology*, 21:6, 875-898

To link to this article: <http://dx.doi.org/10.1080/1359432X.2011.598653>

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“Don’t throw the baby out with the bathwater!” Interpersonal strain at work and burnout

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Interpersonal strain represents the feeling of discomfort and disengagement in the relationships with people at work resulting from exceeding social requests and pressures. This article has three aims: (1) to introduce the Interpersonal Strain at Work scale (ISW), (2) to examine its construct validity and reliability, and its relationship with the Maslach Burnout Inventory exhaustion and cynicism; and (3) to test the generalizability of the ISW across different work settings. Multilevel CFA on two samples of call centre agents (5407) and hospital professionals (753), nested in 191 and 43 units, respectively, confirmed the good psychometric properties of the ISW and its distinctiveness from established burnout dimensions. The generalizability of ISW was also supported. Interpersonal strain at work seems to be a promising construct to recapture the interpersonal nature of the burnout syndrome that was lost when the concept of burnout was extended beyond the human services.

Keywords: Burnout; Interpersonal strain; Interpersonal Strain at Work Scale.

Because of two developments, contemporary workers are exposed to increasing and demanding interactions with other people (Mount, Barrick, & Stewart, 1998). First, the impressive growth of service-related jobs, which now employ about 70% of the entire workforce in European countries and about 80% in the United States (D’Agostino, Serafini, & Ward-Warmendinger, 2006). In service settings customer satisfaction represents a relevant

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asset, and service staff have to deal continuously and immediately with clients' needs and requests. The second trend is related to the rising number of team-based organizations in which people are supposed to work interdependently and collaborate with each other to achieve common work goals (Lawer, Morhman, & Ledford, 1995).

On the one hand, relationships at work represent relevant aspects of the job context that may provide social support and thus promote well-being and job satisfaction (Bakker, Demerouti, & Euwema, 2005; Cohen & Wills, 1985; Kahn & Byosiere, 1992). However, on the other hand they may also be considered as significant source of psychological strain (Grandey, Dickter, & Sin, 2004; Zapf, 2002). For instance, emotional labour (Hochschild, 1983), linked to interactions with customers, and colleagues, may lead to negative consequences for employee health and well-being (Brotheridge & Grandey, 2002; Tschan, Rochat, & Zapf, 2005; Zapf & Holz, 2006). Other interpersonal stressors at work are related to the number of contacts or to the lack of reciprocity in social interactions with customers, colleagues, or supervisors (Bakker, Schaufeli, Sixma, Bosveld, & van Dierendonck, 2000; Dormann & Zapf, 2004; Maslach, Schaufeli, & Leiter, 2001; Schaufeli, 2006).

The most popular concept representing negative psychological reaction towards demanding and difficult relationships with other people at work is burnout (Maslach, 1982; Maslach et al., 2001). Originally, burnout was defined as a syndrome occurring exclusively among helping professionals, resulting from frequent and intense exposure to emotionally charged helper–recipient interactions. Later on, with the purpose of extending the phenomenon across different work contexts, burnout was redefined more as a general crisis in the relationship with one's own work (Maslach & Leiter, 1997; Schaufeli, Leiter, Maslach, & Jackson, 1996; Schaufeli & Taris, 2005). Depersonalization, which in the original definition of burnout was its prototypical interpersonal expression (Salanova et al., 2005), was replaced by a more general and nonsocial dimension, namely cynicism. In our view, this conceptual development changed the focus of burnout: in an attempt to go beyond the caregiver–recipient relationship and generalize the burnout construct across all occupations, its unique interpersonal feature was lost. Seen from this perspective, “the baby was thrown out with the bathwater”.

Considering the rise of the number of jobs in which interactions with others (e.g., team members, customers) constitute a major part of the work tasks, we argue that interpersonal relationships may represent in itself a significant source of psychological distress, even outside the human services, in which initially burnout was studied exclusively. Therefore, to fill this gap and recapture the original social root of burnout, we introduce the interpersonal strain concept, which refers to a specific disengagement reaction from all relevant interpersonal relationships at work.

The present contribution aims to:

1. Define interpersonal strain as a constituting component of burnout and operationalize it using the Interpersonal Strain Scale at Work (ISW).
2. Examine the construct validity, distinctiveness and reliability of the ISW in relation to both core burnout components, namely exhaustion and cynicism.
3. Assess the generalizability of the factorial structure and the psychometric properties of the ISW in different work settings.

A special feature of the current study is that it was carried out in work units of two organizations. Although most burnout studies are conducted in organizations, usually they do not take the hierarchical structure of the data into account, such as individuals nested in work units. However, our study specifically addresses this issue by applying multilevel models so that better estimates are obtained.

DEPERSONALIZATION, CYNICISM, AND INTERPERSONAL STRAIN

The role of interactions with other people at work as a source of disengagement and cynicism has been extensively studied from different perspectives.

The burnout syndrome was originally introduced in helping professions to describe a specific psychological response (Lee & Ashforth, 1996), comprising three different components, namely emotional exhaustion, depersonalization, and reduced personal accomplishment. Compared to other strains, "the unique feature of burnout is that its stress results from the social interactions between helpers and their recipients" (Maslach, 1982, p. 3). Hence, all three burnout dimensions were related to emotionally draining interactions with other people. Depersonalization, in particular, corresponded to the impersonal and dehumanized perception of the recipients by denying their humanity and personal identity. In doing so, human services employees protect themselves from negative and overwhelming emotions (Maslach & Pines, 1977). This self-protective reaction is expressed by a callous and detached attitude that disconnects the individual from others, reducing their empathy and blaming recipients for their problems (Bakker & Heuven, 2006; Schaufeli & Enzmann, 1998). Thus, burned-out employees are no longer able to manage their interaction with recipients adequately (Dorman & Zapf, 2002).

Following the more recent conceptualization (Maslach et al., 2001; Schaufeli et al., 1996), burnout was extended to all work contexts and thus

the three dimensions were redefined in a broader and nonsocial way. Considering that depersonalization was the burnout dimension that referred most explicitly to relationships with recipients, this dimension changed radically, by being substituted with cynicism, which corresponds to a detached and indifferent response towards the work in general (Schaufeli & Taris, 2005).

The concept of cynicism was already present in previous personality studies, and referred to an interpersonal attitude distinguished by a dislike for and distrust of others (Cook & Medley, 1954). Subsequent research in the work context has depicted organizational cynicism as a more general negative attitude towards a person, group, or object(s) involving a feeling of frustration, disillusionment, and distrust (Abraham, 2000; Andersson & Bateman, 1997). Organizational cynicism in most cases relates to the business, organizational change, or institutions, but when it relates to interpersonal relationships it harks back directly to depersonalization concept (Abraham, 2000; Andersson & Bateman, 1997; Dean, Brandes, & Dharwadkar, 1998).

Some authors (Gaines & Jermier, 1983; Golembiewski, Munzenrider, & Carter, 1983) have attempted to broaden the interpersonal detachment reaction beyond the provider–recipient interaction, by studying depersonalization in the relationship with colleagues. However, this extension to relationships with co-workers by simply rephrasing the original Maslach Burnout Inventory (MBI) items did not lead to encouraging results (Demerouti, Bakker, Vardakou, & Kantas, 2003; Garden, 1987). For instance, Golembiewsky and colleagues (1983) obtained a rather modest internal consistency of the adapted depersonalization scale (with a Cronbach's alpha value of .60). Moreover, Evans and Fisher (1993) found that the indicators of the original and the adapted scales to co-workers' depersonalization scales did not form a coherent factor in a nonhuman service sample.

Maslach and colleagues (2001) have argued that depersonalization and cynicism represent attempts to distance oneself from two different objects: from the recipient as far as human services professionals are concerned, and from the work in general as far as employees outside the human services are concerned, respectively. In fact, the distinctiveness and uniqueness of MBI depersonalization and cynicism have been empirically demonstrated (Salanova et al., 2005).

In order to emphasize the constituting role that is played in burnout by interpersonal relationships at work, we introduce the interpersonal strain concept and concomitant measure. In doing so, we recapture the original conceptualization of depersonalization, making it suitable for every work relationship. Interpersonal strain represents a specific disengagement reaction towards demanding interpersonal interactions and social pressures,

through which the person creates emotional and cognitive distance from other people at work. It reflects a self-protective reaction from demanding interactions and overtaxing social pressures coming from both within and/or outside the organization, that interferes with performance.

Interpersonal strain is related to the concept of social withdrawal, which is developed and studied regarding personal relationships (Eldridge & Christensen, 2002). Social withdrawal has been defined as a defensive and avoidant interpersonal response towards demanding social interactions. The communication pattern demands-withdrawal, in which the demander criticizes and makes demands to the other, while the withdrawer avoids confrontation and withdraws, has received strong empirical support (Caughlin & Huston, 2002). Taris, van Horn, Schaufeli, and Schreurs (2004) extended the social withdrawal concept to work relationships, attesting that unbalanced interactions with people at work could lead to differentiated withdrawal reactions (Bakker et al., 2000; Schaufeli, 2006). In doing so, they considered this reaction tightly linked to a particular exchange interaction. Instead, we argue that requiring relationships with customers, as well as with colleagues or supervisors, may be a source of a broad-spectrum social withdrawal reaction, namely interpersonal strain.

One could ask why introduce a new concept and not simply bring back depersonalization. Interpersonal strain differs from depersonalization in three different ways. First, it refers to a disengaged attitude that originates from *all kinds* of different relationships with other people at work, whereas depersonalization refers to the recipient only. Second, interpersonal strain may occur in *all work contexts*, and mainly where relationships are relevant for achieving professional goals, such as service and team-based jobs, whereas depersonalization is by definition restricted to the human services. Third, interpersonal strain includes the negative, distant, and callous attitude towards other people, but not the most extreme aspect of depersonalization, namely the dehumanized attitude. In fact, items related to dehumanization have been criticized by Kristensen, Borritz, Villadsen and Christensen (2005) because of the negative reactions they generated among the respondents. This might also explain why the scores of the depersonalization scale of the MBI are often nonnormal and positively biased (Kristensen et al., 2005). Only very few respondents endorse such extreme depersonalization items. In contrast, interpersonal strain is not operationalized in such extreme terms.

Interpersonal strain and cynicism are general dimensions that basically apply to all work contexts, and they both refer to detachment and disengagement. One could presume that they represent two expressions of a “mental distancing” (Maslach et al., 2001), but refer to different objects, namely relationship with other people at work (interpersonal strain) and the job itself (cynicism). However, we argue that they represent two distinct

dimensions. Cynicism basically reflects a motivational dimension, since it refers to the loss of emotional and cognitive involvement with the job. Interpersonal strain represents a disengagement reaction towards other people with whom the focal person interacts at work, thereby reflecting a process of deteriorating interpersonal relationships at work. Moreover, interpersonal strain is the result of demanding or overtaxing interpersonal pressures, whereas cynicism may be linked to a variety of other noninterpersonal work characteristics (Maslach & Leiter, 1997). Hence, we propose interpersonal strain not as a “new” dimension in addition to the burnout concept, but as a dimension specifically originated in burnout evolution from depersonalization to cynicism.

THE PRESENT STUDIES

We present two studies in which we introduce a scale to measure interpersonal strain at work, the Interpersonal Strain at Work (ISW) scale. The psychometric properties of the ISW scale are assessed and its relationship with exhaustion and cynicism, the two core burnout components (Green, Walkey, & Taylor, 1991), is investigated. In a similar vein, Schaufeli and Taris (2005) argued that the basic structure of the burnout phenomenon comprises the combination of an energetic and a withdrawal component, that is exhaustion and cynicism, respectively. We propose that interpersonal strain recaptures the original interpersonal component of burnout, but generalized to all relationships at work.

We assume that the specific disengagement reaction towards demanding interactions with other people at work (interpersonal strain), is correlated but may be differentiated both from the feeling of being exhausted and depleted of energy (exhaustion) and from a distant attitude towards work in general (cynicism). In particular, we argue that interpersonal strain and cynicism do not collapse into a single mental distancing dimension.

In the first study among call centre operators, we examine the dimensionality and construct validity of interpersonal strain at work, together with exhaustion and cynicism in a large sample of call centre operators. We tested the following hypotheses:

Hypothesis 1: All items that constitute the interpersonal strain scale load on one single latent factor.

Hypothesis 2: Exhaustion, cynicism, and interpersonal strain represent three correlated but differentiated factors. This means interpersonal strain is a unique dimension that can be distinguished from cynicism.

Hypothesis 3: The scales measuring interpersonal strain, cynicism, and exhaustion are reliable and show an adequate level of discriminant validity.

In the second study, we carried out the same analyses as in Study 1 using another independent sample of hospital professionals. The aim of this study is to replicate the results of the first study in a prototypical occupational group that has often been used in previous burnout research. More specifically, in the second study we will test the following hypothesis:

Hypothesis 4: The psychometric properties of the interpersonal strain measure (namely reliability, factorial, and discriminant validity) are similar in a hospital setting, as compared to a commercial service setting.

Organizational research data often have a hierarchical structure with employees nested in work groups within organizations. Multilevel models provide a more accurate and comprehensive description of the relationships in suchlike clustered data than do conventional models, by correcting underestimated standard errors. Few burnout studies have taken into account problems that originate from correlated observations due to clustered data. Given the hierarchical structure of both datasets (call centre agents and hospital staff are both clustered in units), all analyses to be performed take into account the nonindependence of observations by adopting a multilevel perspective.

STUDY 1

The first study is carried out in call centres. Call centre operators are particularly exposed to social pressures that originate from demanding, angry, hostile, or aggressive customers (Grandey et al., 2004) and from being constantly monitored by supervisors (Bakker, Demerouti, & Schaufeli, 2003). For this reason, call centre employees are a relevant occupational group for studying interpersonal strain.

Method

Participants and procedures. The first study involved 5407 call centre agents (79% response rate), from seven outsourcing customer relationship management services. Each participant, working in one of these different company sites, received a presentation letter that briefly described the project and individually filled out an anonymous paper and pencil questionnaire. In February 2009, operators were invited to participate in a survey on job stress and well-being. Participants (69% females) had different ages: 18–25 years (10%), 36–45 (29%), and over 46 years (7%), with the modal age group being from 26–35 years (54%). About 78% of the sample had completed high school, while 22% had a university degree. About 46% of the sample had between 3 and 5 years of organizational tenure, about

10% had less than 3 years, and 43% had more than 5 years of tenure. All participants had a permanent contract and worked in inbound (95%) or outbound (5%) services.

The data are hierarchical in nature, with individual employees nested within 191 different workgroups.

Measures. Exhaustion and cynicism were both assessed with the Italian version (Borgogni, Galati, Petitta, & Centro Schweitzer, 2005) of the Maslach Burnout Inventory–General Survey (MBI-GS; Schaufeli et al., 1996). Exhaustion was measured with five items framed as statements of job-related feelings of emotional and physical fatigue, such as “I feel emotionally drained from my work” (Ex), rated on a 7-point frequency scale (ranging from 0 = “never” to 6 = “daily”). Cynicism was rated with five items reflecting a distant and disengaged attitude towards work in general, such as “I have become less interested in my work since I started this job”, rated on a 7-point frequency scale (ranging from 0 = “never” to 6 = “daily”). One item, 13 (“I just want to do my work and not be bothered”), was excluded from the analysis due to its ambiguous content (Leiter & Schaufeli, 1996; Salanova & Schaufeli, 2000).

Interpersonal strain was measured by six items specifically developed to measure the mental and emotional distancing from other people at work. Starting from the original depersonalization scale of MBI-HSS (Maslach & Jackson, 1981), items were generated referring to disengagement reactions towards other people at work. These items are general in nature and apply to all work contexts. They describe feelings, behaviours, and attitudes towards other people and avoid assessing an extreme discomfort reaction as is the case with some items of the MBI depersonalization scale (Kristensen et al., 2005). A preliminary pool of nine items was validated in a first Italian study (Borgogni, Armandi, Amaducci, & Consiglio, 2007) by means of exploratory and confirmatory factor analysis. The score distribution of three items was skewed to the extent that it violated the normality assumption, so they were excluded. The six remaining items were used to measure interpersonal strain (see Appendix), rated on a 7-point frequency scale (ranging from 0 = “never” to 6 = “daily”).

Statistical analyses. In Study 1, we used data of 5407 employees nested within 191 units (the average size of unit was 38). To obtain a measure of the proportion of variance among groups or of the variance explained by the grouping structure in multilevel data, we computed the intraclass coefficient (ICC; see Hox, 2002).¹ This correlation should be higher than the average

¹ As a preliminary step to data analysis, the influence of the nesting ingenerated by the presence of the seven management services was explored. Using the ICC, we were able to find

correlation among variables measured on individuals from different units. In our data, the ICC coefficients associated with all items had an average value of .04 ($SD = 0.02$). According to the standards adopted by other researchers (e.g., Hox, 2002; Stevens, 1990), this value can be considered as an index of a low to moderate grouping effect. So it would be inappropriate, if not misleading, to ignore the hierarchical data structure. Indeed, the failure to account for the nested structure of the data ingenerated by the grouping effect leads to biased estimates of standard errors (Park & Lake, 2005), and to increased Type I error rates (Reise & Duan, 1999). Thus, in performing the confirmative factor analysis (CFA), the dependence of call centre employees' data within work units was taken into account. With this aim, we used an estimation procedure that "includes a Taylor series-like function to provide a normal theory covariance matrix for analysis" (Stapleton, 2006, p. 352) and produces correct parameters' estimates, standard errors, and test statistics.

We extracted two random samples of 2963 workers and 90 units, and of 2443 workers and 101 units, each drawn from the original sample and roughly balanced by number of units (in order to ensure the similarity of the hierarchical structure of the data), to form a "calibration" and a "validation sample", respectively. This approach minimizes the risk of capitalizing on sample peculiarity (Bagozzi & Baumgartner, 1994; Byrne, 1994).

For estimating the hypothesized models and for handling missing data, we used robust full information maximum likelihood estimation, as implemented in the MPlus 4.01 program (MLR; Muthén & Muthén, 2006). This software operationalizes the strategies developed by Muthén (1994) for performing multilevel analysis within the framework of CFA and structural equation modelling. For assessing the fit of the various models to the data the following criteria were employed (Tanaka, 1993), χ^2 likelihood ratio statistic, Tucker and Lewis Index (TLI), Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA) with associated confidence intervals. The chi-square statistic is sensitive to large sample sizes and easily produces a statistically significant result (Kline, 1998). Although there are no clear guidelines suggesting precise thresholds regarding the use of alternative fit indices with multilevel structural equation modelling, we followed the standard recommended values, and accepted TLI and CFI values greater than .90 (Jöreskog & Sörbom, 1993; Mulaik et al., 1989) and RMSEA values lower than .08 (Brown & Cudeck, 1993).

only a minor influence due to data nesting (mean ICC .015, $SD = 0.012$), in the range often defined as negligible. As current multilevel modelling prevents us from considering more than two levels in the analysis (i.e., the "individual level", and the group, or "unit level"; see Muthén & Muthén, 2004), in subsequent analyses we concentrate only on the group (or work unit) level, which, instead, significantly contributed to the nested structure of the data.

Results

Dimensionality of the Interpersonal Strain at Work scale. As a preliminary step, the ISW scale was scrutinized separately, in each of the two random halves of the sample. Results from CFA demonstrated a good fit for the hypothesized unidimensional model on both the first, $\chi^2(9, N=2992)=157.06$, CFI=.947, TLI=.911, RMSEA=.074 (CI=.064–.085), and the second random half, $\chi^2(9, N=2243)=80.56$, $p < .01$, CFI=.964, TLI=.940, RMSEA=.057 (CI=.04–.069). All loadings were significant, ranging from .56 to .72 with a mean of .65 ($SD=0.06$) in the first random half, and ranging from .55 to .70 with a mean of .66 ($SD=0.058$) in the second random half. Thus the unidimensional structure of the instrument was supported.

Alternative models. Confirmatory factor analyses (CFA) were also performed, in order to investigate the dimensionality of the latent structure of the 15 burnout items. In detail, five alternative models were tested.

- *Model 1: The hypothesized model.* This model assumes three correlated factors representing exhaustion, cynicism, and interpersonal strain. We specified a congeneric model in which neither cross-loadings nor correlated errors were allowed. Factor variances were fixed at 1 for identification purposes, whereas factor covariances were freely estimated.
- *Model 2: The common variance bias model.* This model implements the Harman's single factor test (Harman, 1967), using a model in which all items from all constructs in the study load on a single factor. This simple test allows the determination of whether the majority of the variance can be accounted for by one general factor, representing the influences of method bias on observed item covariances (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).
- *Model 3: The general withdrawal model.* In this model we specified two correlated factors. The first includes all exhaustion items and the second includes all cynicism and interpersonal strain items. The basic reasoning underpinning this model was that items from cynicism and interpersonal strain would tap a single broad and extended cynicism factor.
- *Model 4: The mental distancing model.* This is a second order factor model, in which the two correlated factors of cynicism and interpersonal strain equally load on a second order factor representing a higher level "mental distancing" factor (Maslach, 1993) with two foci, work and social relationships, respectively.

Basically, this model investigates if a single latent component would account for the employee's scores on cynicism and interpersonal strain.

- *Model 5: The discriminant validity model.* In this final model the discriminant validity of the interpersonal strain scale was examined by fixing at 1.0 its correlation with the cynicism scale (Anderson & Gerbing, 1984). If the constructs are not perfectly correlated, discriminant validity is corroborated (Bagozzi, Yi, & Phillips, 1982).

Model comparison. Model 1 (i.e., the hypothesized model) was compared with four alternative models, each of them reflecting an alternative interpretation of item covariances. In order to compare nested models, the chi-square difference test was computed, with appropriate scaling correction to better approximate chi-square under data nesting (see Muthén & Muthén, 2006).

We subjected results from our modelling to a cross-validation procedure (Bagozzi, 1994) by testing the entire sequence of the models in each of the two random halves of the total sample.

Model fitting results. As shown in Table 1, the analyses corroborated the comparative best fit of the hypothesized correlated three factor model (M1). Moreover, the cross validation procedure attested the stability of these results (see also Table 1).

Table 2 shows the standardized estimates of the factor loadings and of the unique variances for Model 1 (these are the coefficients of the lambda and the theta-delta matrices, respectively, using LISREL terminology). All coefficients are statistically significant, indicating that a high amount of variance of each observed variable is explained by the common factors and that there exists low unique variance. In particular, the factor correlations (ϕ) ranged from .55 (exhaustion and interpersonal strain) to .78 (cynicism and interpersonal strain), across the two random halves.

Scale reliability. Table 2 also shows reliability estimates obtained from (1) the Cronbach's alpha coefficients and (2) the results of CFA using the formulas developed by Bagozzi (1994, Equation 9.6, p. 324) to compute the composite reliability (CR), separately for the two random halves. Whereas the alpha coefficient assumes item parallelism (i.e., equal factor loadings equal error variances), CR is a measure of the overall reliability of a collection of heterogeneous but similar items. Accordingly, the reliability estimate from the SEM approach tends to be higher than Cronbach's α , which (when the strong assumption of item parallelism is not respected) provides the lower bound estimate for the composite score reliability. Both sets of reliability estimates were high and consistent with the standards

TABLE 1
 Goodness fit indices for the hypothesized model for the two random halves

	χ^2		df	CFI		TLI		RMSEA		SRMR	
	r_1	r_2		r_1	r_2	r_1	r_2	r_1	r_2	r_1	r_2
M1. Three correlated factors	1293.82*	959.66*	87	.927	.938	.926	.931	.068 [0.065-.071]	.064 [0.061-.068]	.044	.043
M2. Unique factor model	4646.69*	2946.25*	90	.725	.797	.717	.777	.130 [0.127-.133]	.115 [0.111-.118]	.092	.081
M3. Broad cynicism	2199.90*	1771.10*	89	.878	.888	.867	.874	.089 [0.086-.092]	.088 [0.085-.092]	.061	.061
M4. Superordinate cynicism	1387.73*	1055.35*	88	.922	.931	.913	.924	.070 [0.067-.074]	.067 [0.064-.071]	.056	.056
M5. Perfect correlation	2122.45*	1711.59*	88	.877	.885	.866	.879	.088 [0.085-.091]	.087 [0.084-.091]	.056	.056
	$\Delta\chi^2$										
	r_1	r_2	Δdf								
M2 vs. M1	3352.87*	1986.59*	3								
M3 vs. M1	906.08*	811.44*	2								
M4 vs. M1	93.91*	95.69*	1								
M5 vs. M1	828.63*	751.93*	1								

r_1 = first random sample (2963 workers and 90 groups); r_2 = second random sample (2443 workers and 101 groups). * $p < .05$.

TABLE 2
 Factor patterns and reliability estimates from CFA for the two random halves (Study 1)

	<i>Parameter estimates</i>				<i>Reliability estimates</i>				
	<i>r₁</i>		<i>r₂</i>		<i>r₁</i>		<i>r₂</i>		
	λ	θ	Λ	θ	α	CR	α	CR	
<i>Exhaustion</i>									
Item 1	.809	.346	.810	.344	.909	.902	.912	.902	
Item 2	.786	.382	.769	.409					
Item 3	.807	.349	.821	.327					
Item 4	.734	.461	.750	.437					
Item 5	.884	.219	.871	.241					
<i>Cynicism</i>									
Item 1	.730	.467	.721	.480	.857	.859	.863	.864	
Item 2	.812	.341	.831	.309					
Item 3	.791	.374	.821	.326					
Item 4	.776	.398	.762	.420					
<i>Interpersonal strain</i>									
Item 1	.766	.456	.777	.401	.810	.820	.807	.818	
Item 2	.789	.382	.796	.368					
Item 3	.675	.545	.683	.534					
Item 4	.671	.551	.637	.595					
Item 5	.694	.519	.678	.541					
Item 6	.744	.447	.757	.427					
<i>Phi matrix</i>									
	<i>r₁</i>			<i>r₂</i>					
	(1)	(2)	(3)	(1)	(2)	(3)			
1. Exhaustion	–			–					
2. Cynicism	.719	–		.778	–				
3. Interpersonal strain	.545	.743	–	.596	.720	–			

r_1 = first random sample (2963 workers and 90 groups); r_2 = second random sample (2443 workers and 101 groups); α = Cronbach's alpha; CR = composite reliability.

usually adopted in the field of psychometric theory (e.g., see Nunnally & Bernstein, 1994).

Convergent and discriminant validity. We computed additional indices to examine more in detail the *convergent* and *discriminant* validity of the three scales measuring exhaustion, cynicism, and interpersonal strain. Evidence of the former relates to the degree of covariance among the different subsets of items used to measure each construct, whereas the latter refers to the degree

to which the measures of the three subsets of items represent correlated but different constructs (i.e., exhaustion, cynicism, and interpersonal strain). To measure convergent validity, we estimated the average variance extracted (AVE). The AVE of the constructs represents the proportion of item's variance that is captured by the construct. A model can be considered to have a good convergent validity if at least 50% of the measurement variance is captured by the construct (AVE > .50; Fornell & Larcker, 1981).

Within structural equation modelling, discriminant validity can be considered as sufficient if the average variance extracted by a factor is larger than the squared correlation coefficient between factors. Therefore, the ratio of factor correlation/AVE (i.e., the *Fornell/Larcker ratio*) should be less than 1 (Fornell & Larcker, 1981). Finally, to further attest discriminant validity, we examined if the latent correlations between (1) interpersonal strain and exhaustion, and between (2) exhaustion and cynicism, were significantly different from 1.

As reported in Table 3, we obtained satisfactory levels for all of indices that were described above. In detail, the AVE was higher for the exhaustion scale, whereas the Fornell/Larcker ratio was higher for the interpersonal strain scale as compared to both other scales. Accordingly, one may conclude that convergent and discriminant validity were demonstrated for all three scales. Moreover, fixing the correlations at 1.00: (1) between interpersonal strain and exhaustion: Sample 1, $\Delta\chi^2(1) = 2163,14$, $p < .001$; Sample 2, $\Delta\chi^2(1) = 1638,98$, $p < .001$; and (2) between cynicism and exhaustion: Sample 1, $\Delta\chi^2(1) = 1281,69$, $p = .001$; Sample 2, $\Delta\chi^2(1) = 441,35$, $p < .001$, significantly degraded model fit, therefore demonstrating discriminant validity.

Finally, we also tested the absolute difference between 1 and each couple of correlations between factors. In all cases this difference (henceforth called "*diff*") proved to be higher than the product of the associate standard error times 1.96. Indeed, they were (1) $diff = .28 > .049$ (Sample 1), and

TABLE 3
Global fit indices for the two random halves (Study 1)

	AVE		Fornell/Larcker ratio	
	r_1	r_2	r_1	r_2
Exhaustion	.648	.648	.69 (SD = 0.20)	.76 (SD = 0.20)
Cynicism	.605	.616	.74 (SD = 0.22)	.81 (SD = 0.21)
Interpersonal strain	.521	.532	.82 (SD = 0.24)	.90 (SD = 0.23)

r_1 = first random sample (2963 workers and 90 groups); r_2 = second random sample (2443 workers and 101 groups); AVE = average variance extracted.

$diff = .29 > .051$ (Sample 2) for the correlation between exhaustion and cynicism; (2) $diff = .45 > .043$ (Sample 1), and $diff = .44 > .041$ (Sample 2) for the correlation between interpersonal strain and exhaustion; and (3) $diff = .26 > .096$ (Sample 1), and $diff = .25 > .10$ (Sample 2), for the correlation between interpersonal strain and cynicism.

Accordingly, convergent and discriminant validity were convincingly demonstrated for all three scales.

STUDY 2

In order to explore the generalizability of ISW, the second study was carried out in a hospital setting, representing a prototypical burnout context. Hospital staff are exposed to different kinds of social pressures, having to deal with continuous and demanding interactions with patients as well as being expected to work interdependently within the unit.

Method

Participants and procedures. The second study involved 755 hospital professionals (60% response rate) working in seven different hospitals in central Italy. In March 2009, each hospital was contacted and invited to participate in a study on job stress and well-being. Participants received a questionnaire along with a presentation letter that briefly described the aims of the research. Confidentiality and anonymity of the questionnaire were guaranteed. Participants (66% female) were of ages: 18–25 years (3%), 26–35 years (23%), 45–54 years (29%), and over 55 years (8%), with the modal age group being from 36 to 45 years old (37%). Fifty-one per cent of the sample were professional nurses, 24% physicians, and 25% were other hospital staff (such as practical nurses, technicians, and physiotherapists). Considering organizational tenure at the hospital, about 34% of the sample had been employed for less than 3 years, 26% for between 4 and 6 years, and about 40% for more than 7 years.

Consistent with Park and Lake (2005), hospital data have a clear hierarchical structure with individual employees nested within 43 different hospital units (the average unit size is 15).

Measures and methodology. Workers completed the three scales described in Study 1 to assess exhaustion, cynicism, and interpersonal strain.

Statistical analyses were performed on the entire sample (with no split-half division), according to the same criteria and following the same procedures as described for Study 1.

Results

The ICC coefficients associated with the different items resulted in an average value of .04 ($SD = 0.02$).² This value can be considered as an index of a low to moderate grouping effect (e.g., Hox, 2002; Stevens, 1990), that was controlled in the successive CFAs using an appropriate estimator (Stapleton, 2006).

The hypothesized model (i.e., Model 1 of Study 1), showed a good fit to the data, $\chi^2(87, N = 753) = 407.42, p < .01, CFI = .930, TLI = .916, RMSEA = .070$. All loadings were significant ranging in a standardized metric: from .87 to .68 for exhaustion, from .86 to .70 for cynicism, and from .81 to .70 for interpersonal strain (see Figure 1). As in Study 1, the latent factors resulted strongly correlated, with factor correlations ranging from .61 (exhaustion and interpersonal strain) to .71 (cynicism and interpersonal strain). Moreover, the average variance extracted was higher for the cynicism scale, whereas the Fornell/Larker ratio was higher for exhaustion and interpersonal strain scales as compared to the cynicism scale. Again, fixing the correlation to 1.00 between (1) interpersonal strain and cynicism, $\Delta\chi^2(1) = 80.11, p < .001$; (2) interpersonal strain and exhaustion, $\Delta\chi^2(1) = 130.23, p < .001$; and (3) exhaustion and cynicism, $\Delta\chi^2(1) = 98.45, p < .001$, significantly degraded the model fit, which further attests discriminant validity.

Finally, as reported in Table 4, each factor showed adequate psychometric properties. Indeed, reliability was good (as attested by the alpha levels and mean composite reliability), and convergent and discriminant validity were demonstrated (as attested by the AVE and the Fornell/Larker ratio). Moreover, the correlation between (1) exhaustion and cynicism ($diff = .27 > .058$), (2) interpersonal strain and exhaustion ($diff = .39 > .047$), and (3) interpersonal strain and cynicism ($diff = .28 > .072$), were all significantly different from 1 (see Study 1 for more details on this analysis).

TABLE 4
Reliability and global fit indices (Study 2)

	α	CR	AVE	Fornell/Larker ratio
Exhaustion	.870	.866	.567	.83 ($SD = 0.23$)
Cynicism	.862	.863	.615	.76 ($SD = 0.21$)
Interpersonal strain	.890	.892	.579	.82 ($SD = 0.22$)

$N = 755$ workers from 7 different hospitals. AVE = average variance extracted.

² As for Study 1, the influence of the nesting ingenerated by the 7 hospitals was explored. The ICC resulted low (mean ICC .009, $SD = 0.023$). Thus, as in Study 1, only the group (or work unit) level is considered in the analyses.

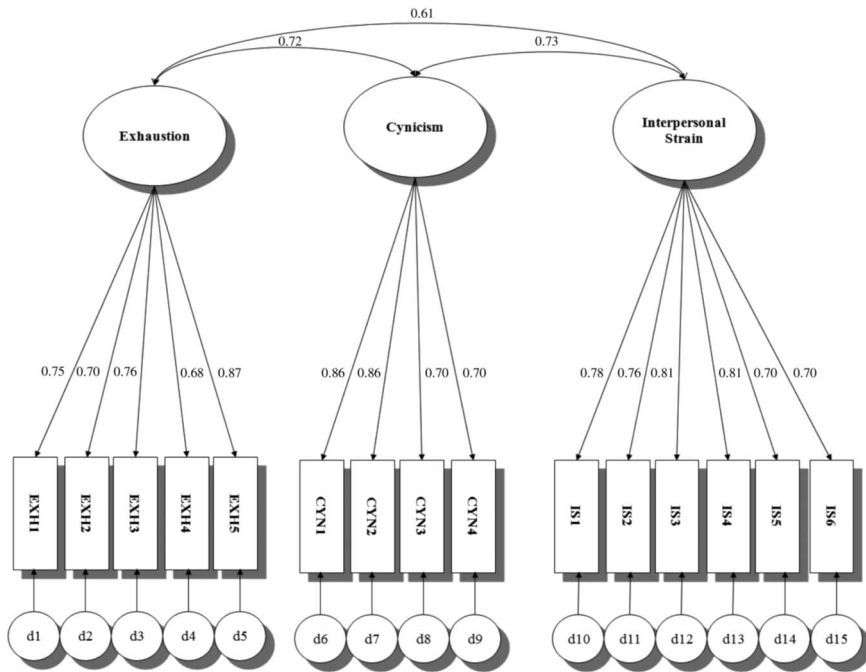


Figure 1. Diagrammatical representation of the scale. All the path coefficients are significant beyond the $p < .05$ level. D1–D15 = residuals.

GENERAL DISCUSSION

The present research introduces the concept of interpersonal strain at work and its measure along with well-established MBI exhaustion and cynicism scales.

When the original MBI, developed for use in the human services, was broadened to cover burnout in all occupational groups, its characteristic interpersonal nature represented by depersonalization was lost and replaced by cynicism (which does not refer to other people). The current study proposes to include interpersonal strain as a likely constituting component of burnout, thereby reemphasizing the original social nature of the construct.

The unidimensionality of the ISW scale per se was confirmed. Model fitting results provided evidence of the fact that interpersonal strain represents a separate but interrelated factor associated with MBI exhaustion and cynicism. According to a previous study (Salanova et al., 2005), detachment from work and detachment from relationships represent neither two expressions of a general “withdrawal factor”, nor two facets of a second-order “mental distancing” factor, but two unique and distinctive

strain reactions. This is in line with our results, which show that interpersonal strain at work and cynicism are two distinct scales. Nevertheless, correlations among burnout dimensions indicated that interpersonal strain is more strongly associated with cynicism as compared to exhaustion. As a matter of fact, this association is about as strong as that between exhaustion and cynicism ($>.70$).

Despite the high correlations among the scales of exhaustion, cynicism, and interpersonal strain (pointing to their convergent validity), there was clear evidence for the uniqueness of each one of them. One may speculate that the high degree of correlation detected among the three dimensions, may reflect the shared influences of a common latent dimension affecting each of them simultaneously, namely the job burnout syndrome. However, our results show that, although highly interrelated, none of these three dimensions can be subsumed by the other two without losing its unique contribution to the overall burnout construct.

Moreover, a high level of internal consistency was observed for the ISW scale in all three samples that were analysed, irrespective of the method used (i.e., the alpha coefficient or the composite reliability).

Results attested also the stability of the factorial structure across two large samples, namely employees working in a call centre and those working in a hospital setting, respectively. Since both work contexts differ considerably, the similarity of the obtained results with the ISW scale supports the generalizability of the findings. All in all, the ISW seems to measure the same construct independently from the specific work setting. Hospital staff and call centre operators may experience a feeling of discomfort and disengagement in the interpersonal relationships with others, irrespective of whether these are patients, customers, colleagues, or supervisors. Their strain and detachment related to interactions with people at work (interpersonal strain) is different from the attitude of detachment from work in general (cynicism), as well as from the feeling of fatigue and energy depletion (exhaustion). Yet, it also seems that these three components hang together. Therefore, we propose to integrate the concept of interpersonal strain with the two core burnout dimensions, exhaustion and cynicism. Each of these three burnout components results from a specific process: Exhaustion results from chronic energy depletion, cynicism results from disengagement from one's work, and interpersonal strain results from deterioration of social relationships at work.

Strengths and weaknesses

A potential weakness of our studies is that only self-reported data have been used. However, the model we assessed assumed common method variance did not fit. Thus, it is unlikely that common method variance represents a serious concern.

A strength of the studies is represented by the use of three different samples that produced similar results, attesting the stability and generalizability of psychometric properties of the ISW scale. Moreover, in order to avoid bias associated with the grouping effect, we adopted a multilevel approach to take into account the nested structure of organizational data. This allowed us to obtain unbiased parameter estimates and unbiased standard errors. Indeed, the presence of a stratified design (i.e., samples devised by more than only one level, such as the present one), with homogeneous response variables within each stratum (i.e., the same set of variables), may result in overestimation of standard error estimates if conventional analysis is used (Asparouhov, 2004). Consequently, conventional analytical approaches would be less efficient in determining the significance of model parameters such as factor loadings or regression weights (Stapleton, 2008). Consider, for example, the potential effect of data nesting on the present two studies. Using the ICC and the average cluster size, we can quantify the distortion ingenerated by conventional analytic techniques on standard errors' estimates, by using the Design Effect Index (Def; Muthén & Satorra, 1995). In the case of Study 1, we obtained a Def equal to 2.28, and in the case of Study 2 about 1.60. This means that ignoring data nesting would have resulted in an underestimation of the standard error by about 23% in the first, and of about 17% in the second study. From a research perspective, without taking into account data nesting, we might have obtained inflated Type I error rates, and thus misleading parameters' significance test estimates (Skinner, Holt, & Smith, 1989). We retain that the methodological approach described in this article represents a useful statistical tool in dealing with clustered or stratified data (Stapleton, 2008), which can be easily implemented to accommodate major research issues when dealing with multilevel data. Moreover, this represents quite a novelty in burnout research, and particularly in scale validation studies.

Suggestions for future research

The present research was focused on the relationships among interpersonal strain and two established burnout dimensions, as measured with the MBI-GS. Given the fact that burnout research has attested that different types of variables are related to different burnout dimensions (Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998), subsequent studies should explore if interpersonal strain is differently related to interpersonal and emotional stressors (such as work conflicts and emotional demands) and to organizational consequences (such as low customer satisfaction, high absenteeism, or poor team performance). Furthermore, research on construct (discriminant) validity should explore the relationship between burnout (including ISW)

and other interpersonal variables such as emotional dissonance, hostility, and assertiveness. Longitudinal research is also required to investigate the three dimensions and their relationship with working conditions over time, in order to ascertain the role of interpersonal strain as a genuine burnout component and to explore how the process of deterioration of work relationships develops. Considering the relevance of this specific expression of disengagement from a practical point of view, such studies will provide evidence on which factors contribute to generate it, and will throw light on how to intervene in order to prevent or reduce it.

Future studies might also explore the relationship between ISW and alternative burnout questionnaires, such as the Oldenburg Burnout Inventory (OLBI; Demerouti et al., 2003), which measures exhaustion and disengagement in a broad but alternative way. Considering the global market and the increasing personnel mobility across countries, cross-cultural research would be interesting in order to compare levels of ISW in cultures with different social rules about interpersonal relations and social distance (e.g., in collectivistic culture such as China and Japan; e.g., Hu & Schaufeli, 2011).

CONCLUSION

In conclusion, the introduction of interpersonal strain at work seems to be a promising avenue for reconceptualizing burnout; that is, to underline the interpersonal nature of the burnout syndrome that was lost when it was extended beyond the human services. By including interpersonal stress at work as a constituting component of burnout, the baby is once again back in the bath water.

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Original manuscript received November 2010

Revised manuscript received May 2011

First published online November 2011

APPENDIX: THE INTERPERSONAL STRAIN AT WORK SCALE (ISW)³

1. At work, I feel more comfortable keeping distance from others.
2. At work, I find myself to be insensitive to other people's problems.
3. At work, I treat others in a cold and detached manner.
4. At work, I'm not particularly interested in what happens to others.
5. Sometimes when I'm working, it happens to me to mistreat someone.
6. At work, I feel irritated by other people.

³ This scale is a translation into English of the original Italian version, which needs to be validated in an English-speaking sample.