



Original Article

Does Leaders' Health (and Work-Related Experiences) Affect their Evaluation of Followers' Stress?



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ABSTRACT

Background: Stressed workers suffer from severe health problems which appear to have increased. Poor leadership is especially considered a source of stress. Indeed, supervisors might perceive their subordinates to be similar to them as far as stress is concerned and this might be more widespread in organizations than previously thought.

Methods: The present research investigates the relationships between leaders' health, in terms of work-related stress, mental health, and workplace bullying and their evaluation of subordinates' stress. Five regression models were formulated to test our hypothesis. This is a cross-sectional study among 261 Italian leaders, using supervisor self-assessment and leaders' assessments of their subordinates.

Results: Leaders' health was related to their evaluation of staff stress. Job demand, lack of job control, and lack of support by colleagues and supervisors evaluated in their subordinates were particularly associated with the leaders' own health.

Conclusion: Implications for developing healthy leaders are finally discussed.

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1. Introduction

Empirical investigations in a wide variety of countries have provided data that point to the negative consequences of stress. Stressed workers suffer from severe health problems, such as anxiety, compulsive behavior, or posttraumatic stress symptoms [1]. Organizational consequences, such as absenteeism, turnover, and mental health problems, have been reported in the literature [2–5].

Research has shown that high job demands (i.e., workload, time pressure) and low job control (i.e., autonomy and the decision latitude), lack of support from supervisors and colleagues (i.e., the friction between colleagues, managers, and the organization as a whole) and role ambiguity and role conflict (i.e., whether people have conflicting or ambiguous roles within the organization) all have a strong impact on work stress [1,6–8]. Indeed, the literature

has extensively investigated the relationship between these working conditions and the negative consequences of stress (or strains) [9,10].

Among these organizational factors, a lack of supervisor support can strongly affect subordinates' health and stress. It is widely acknowledged that subordinates are affected by the social and psychological support received from their supervisor [11,12]. Poor leadership is, indeed, often considered a source of stress [13].

Few studies have explicitly related supervisors' stress to the evaluation of the subordinates' stress, which is, however, fundamental for building a good leader-follower relationship and for correct health management.

Giorgi et al [14], in a sample of 1,100 employees, showed that the inability of a leader to understand the stress of their subordinates leads the subordinates to developing negative organizational perceptions and mental health problems. Specifically, stronger

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disagreement between subordinates and leader ratings was related to lower levels of subordinates' health.

This paper is intended to illuminate the problem of stress across Italian employees from an innovative perspective. We particularly focus on the role of leaders in understanding their followers' stress and investigate the relationship of leaders' stress with their perception of whether subordinates are perceived to be exhibiting stress. Research has clearly shown that supervisors might have a tendency to evaluate positively people who are professionally similar to them [15]. For example, mentors often select protégés who are similar to themselves in some characteristics. Some promotions and good performance appraisals seem to be influenced by this evaluation bias.

However, much of the similar research has not focused on the construct of stress, although perceiving the job and the work environment similarly seem to be equally rewarding both for subordinates and supervisors [16]. Indeed, the research of Townsend et al [17] showed that sharing a stressful situation with a person with a similar emotional profile, buffers individuals from experiencing high stress levels.

Also, from a more strategic point of view, in evaluating subordinates' stress, leaders might attribute stress responses to their own perception of the organizational and psychological environment rather than to the subordinates themselves, in order to maintain the status quo and organizational effectiveness [14].

Following this research path, we wanted to investigate work-related stress among a sample of Italian managers and middle managers, demonstrating a potential congruence/similar effect in evaluating their subordinates' stress [11].

In Italy, the context of the present study, the new law for the protection of health and safety in the workplace (Legislative Decree no. 81/2008 and subsequent amendments) obliges employers to assess the risks associated with work-related stress. The decree points out the importance of measuring of evaluation made by multiple assessors (e.g., employer, competent doctor, leaders) rather than solely the employee self-report measurement. In our study, we sought to demonstrate the association of a manager's stress self-assessment and the evaluation of their subordinates' stress. We hypothesize that: managers perceive similarity in self and subordinates' assessment of work-related stress; and managers' lack of worker control and participation, low role clarity, high job demand, low leader support, and low colleague support will be associated with their ratings of subordinates' stress.

Moreover, we propose that the stress evaluation of subordinates will be associated with leaders' mental health problems and workplace bullying. Previous literature has suggested that both stress and workplace bullying are significantly associated with employee health perception [18]. In particular, we wanted to test the impact of leaders' stress assessment (self-assessment) on subordinates' stress evaluations, over and above demographics and individual and organizational leader perceptions, such as mental health problems and an extreme form of interpersonal stress – workplace bullying. In addition, gender, seniority, and job status were used to control our models, since these demographic variables might influence leaders' evaluation of their subordinates [19,20].

2. Materials and methods

The present study was part of a broader project aimed at investigating work-related stress across companies. The study followed the code of ethics of the World Medical Association (Declaration of Helsinki). We invited several Italian organizations to survey their managers in order to use best practice for the fulfilling of Decree 81/08 once we gave them a detailed report.

2.1. Participants

The participating companies represented a convenience sample that reflected a diversity of work environments. Out of 500 leaders invited, a total of 265 workers (response rate 53%) completed a questionnaire concerning their psychosocial work environment and health. Participants with missing values for any of the study variables considered were excluded using a listwise deletion procedure. Final participants were 261 Italian leaders in 15 companies chosen by convenience sample who agreed to participate in this study. Approximately three quarters (74.3%) of the participants were employed in private organizations, and approximately one quarter (25.7%) came from public workplaces.

Formal approval from the local ethical committee was not required, because is not compulsory in Italian national legislation.

2.2. Procedure

During 2012 to 2014, data were gathered from managers employed in 15 large national organizations (retail, construction, luxury, public, etc.) based in Italy. With the assistance of their respective human resources and health and safety managers, we administered our questionnaires to randomly selected units from each company, covering a variety of job functions. Managers worked in a variety of different specialist areas throughout the companies and were identified as workers that formally managed and coordinated a team within the organization. Participation was voluntary and the leader mean response rate was around 50% across companies. The questionnaires contained items asking about the manager/leader (self-report questionnaire) and the subordinates. In short, stress items were asked about on both the self-report and subordinates' report, and the General Health Questionnaire (GHQ-12) and Negative Acts Questionnaire Revised (NAQ-R) were asked for only on the self-report questionnaire. When subordinates and self-reports were used, the scales contained the same items in both. Researchers administered the survey to participants in rooms provided by the organizations.

2.3. Materials and instruments

2.3.1. GHQ-12

The scale asks whether the respondent has experienced a particular feeling in the last month (e.g., "felt constantly under strain," "been feeling reasonably happy, all things considered"). Each item is rated on a four-point scale (0–1–2–3) and it gives a total score of 0 to 36 on the basis of the scoring method selected. Six of the items are positively worded and the other six are negatively worded. The three factors version translated in Italy by Fraccaroli et al [21] was used in this investigation: loss of confidence, anxiety and depression, and dysphoria.

2.3.2. Stress Questionnaire

The Stress Questionnaire is a new measure developed by Giorgi et al. [22] and is used to assess five factors of stress identified in analytic researches: (1) role conflict – employees do not have awareness of their tasks and responsibilities; (2) colleagues support – cooperation and support among employees; (3) supervisor support – the extent to which employees experience collaboration and consideration from their supervisors or leaders; (4) job demand – job pressure and the demanding aspects of the job; and (5) job control – job resources and autonomy. Each item is rated on a five-point Likert scale (from strongly disagree 1 to strongly agree 5) and refers both to leaders (self-assessment) and subordinates (subordinates' assessment made by leaders).

2.3.3. NAQ-R

Workplace bullying was measured by the Italian version of the NAQ-R [23]. The items are divided into personal bullying (12 items), described as exposure to behaviors such as gossip, insulting remarks, excessive teasing, and persistent criticism, and work-related bullying (5 items), such as unreasonable deadlines, unmanageable workloads, excessive monitoring, and experiencing crucial information being withheld. A five-point Likert scale was used (from never 1 to every day 5).

2.4. Data analysis

The strength and direction of the relationship between leaders' self-reporting and their evaluations of subordinates were assessed by a series of hierarchical regression analyses using SPSS version 20 (SPSS Inc., Chicago, IL, USA). This approach provides statistical tests that allow for predictive conclusions. We used hierarchical regression as an analytical strategy because it helps determining: (1) the predictive power of each block of variables (i.e., demographics, bullying, and mental health); (2) the unique relationship between each predictor within each block and the dependent variable; and (3) the predictors with the strongest relationship with the dependent variable across blocks of variables [24,25].

Descriptive statistics, correlations, alpha coefficients, and frequencies were also calculated.

3. Results

3.1. Description of sample

Two hundred and sixty-one Italian leaders responded to the study: 61.1% of the respondents were male and 38.9% were female. Demographic data on the number of years worked for the companies were collected; 16.1% of participants had worked from 0 to 7 years and 83.9% > 7 years. The sample included 54.1% managers, 40.9% middle managers, and 5% office workers with responsibilities of coordination. In addition, jobs in administrative (51.9%) and technical areas (32.5%) were more heavily weighted in our data set than those in more general areas (15.6%).

3.2. Statistical analyses

Table 1 presents the descriptive statistics and intercorrelations of the research variables. All variables were correlated. Data were initially examined for outliers, and no significant departures from normality were detected.

Tables 2 and 3 present the results of four regression analyses.

The first analysis was the hierarchical regression with lack of supervisor support (referred to leaders' evaluation of subordinates' stress) as a dependent variable and with demographics in the first block and the dimensions of bullying and mental health in the second block and third block, respectively. Finally, leaders' stress perception was added in the fourth block.

In the first block, demographic data were not significant. When the dimensions of bullying and mental health were added in the second block and third block, the model was significant, and these dimensions each accounted for the 4% increase in variance in the second block and third block ($R^2 = 0.04, p < 0.01$). Finally, when stress factors were added in the fourth block, the model was significant, and these dimensions accounted for the 14% increase in variance (total $R^2 = 0.18, p < 0.001$).

The second analysis was the hierarchical regression with job demand (leaders' evaluation of subordinates' stress) as the dependent variable and with demographics in the first block,

Table 1 Means, standard deviations, alpha of Cronbach, and correlations ($n = 261$)

| Variable | M | SD | Alpha | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|-------------------------|------|------|-------|------|------|------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-------------------|
| 1 Gender | 1.3 | 0.48 | - | - | 0.08 | 0.08 | 0.08 | 0.22 [†] | 0.14* | 0.04 | -0.01 | 0.08 | -0.03 | 0.06 | -0.07 | -0.12 | 0.01 | -0.04 | -0.01 | -0.04 |
| 2 Seniority | 1.8 | .036 | - | - | - | 0.03 | 0.08 | 0.13* | 0.07 | 0.05 | 0.13* | 0.09 | 0.02 | -0.03 | -0.06 | 0.03 | -0.02 | 0.00 | -0.03 | 0.06 |
| 3 Dysphoria | 6.1 | 1.8 | 0.63 | - | - | - | 0.46 [†] | 0.27 [†] | 0.21 [†] | 0.38 [†] | 0.31 [†] | 0.27 [†] | 0.31 [†] | 0.30 [†] | 0.32 [†] | 0.16* | 0.22 [†] | 0.20 [†] | 0.22 [†] | 0.26 [†] |
| 4 Anxiety depression | 3.5 | 2.4 | 0.74 | 0.74 | - | - | - | 0.30 [†] | 0.42 [†] | 0.48 [†] | 0.36 [†] | 0.53 [†] | 0.36 [†] | 0.39 [†] | 0.30 [†] | 0.02 | 0.22 [†] | 0.12* | 0.19 [†] | 0.13* |
| 5 Loss of confidence | 0.40 | 0.95 | 0.66 | 0.66 | 0.66 | - | - | - | 0.13* | 0.17 [†] | 0.14* | 0.07 | 0.09 | 0.09 | 0.12* | 0.10 | 0.11 | -0.02 | 0.04 | 0.08 |
| 6 Personal bullying | 14.7 | 3.4 | 0.83 | 0.83 | 0.83 | 0.83 | - | - | - | 0.52 [†] | 0.38 [†] | 0.36 [†] | 0.46 [†] | 0.41 [†] | 0.35 [†] | 0.13* | 0.13* | 0.11 | 0.30 [†] | 0.31 [†] |
| 7 Work-related bullying | 8.7 | 2.9 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | - | - | 0.39 [†] | 0.39 [†] | 0.48 [†] | 0.36 [†] | 0.41 [†] | 0.36 [†] | 0.18 [†] | 0.28 [†] | 0.12* | 0.23 [†] | 0.23 [†] |
| 8a Supervisor support | 2.4 | 0.90 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | - | - | - | 0.32 [†] | 0.43 [†] | 0.48 [†] | 0.50 [†] | 0.32 [†] | 0.16 [†] | 0.13* | 0.26 [†] | 0.28 [†] |
| 9a Job demand | 2.8 | 0.70 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | 0.78 | - | - | - | 0.44 [†] | 0.38 [†] | 0.25 [†] | 0.15* | 0.40 [†] | 0.20 [†] | 0.22 [†] | 0.15* |
| 10a Lack of job control | 2.1 | 0.56 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | - | - | - | 0.42 [†] | 0.55 [†] | 0.26 [†] | 0.21 [†] | 0.25 [†] | 0.30 [†] | 0.37 [†] |
| 11a Colleagues support | 2.2 | 0.66 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | - | - | - | 0.50 [†] | 0.26 [†] | 0.16 [†] | 0.16* | -0.44 [†] | 0.36 [†] |
| 12a Role conflict | 1.8 | 0.58 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 | - | - | - | 0.40 [†] | 0.22* | 0.20 [†] | 0.28 [†] | 0.44 [†] |
| 13b Supervisor support | 1.9 | 0.60 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | - | - | - | 0.28 [†] | 0.23 [†] | 0.42 [†] | 0.44 [†] |
| 14b Job demand | 2.4 | 0.65 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | 0.76 | - | - | - | 0.20 [†] | 0.33 [†] | 0.14* |
| 15b Lack of job control | 2.3 | 0.50 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | 0.68 | - | - | - | 0.30 [†] | 0.46 [†] |
| 16b Colleagues support | 2.2 | 0.51 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | 0.69 | - | - | - | 0.48 [†] |
| 17b Role conflict | 2.1 | 0.55 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | - | - | - |

Letters following variables indicate: a, self-report; b, leaders' evaluation of subordinates' stress.

* $p < 0.05$.

[†] $p < 0.01$.

Table 2
Hierarchical regression with supervisor support as criterion variable

| Predictors | Supervisor support | | | |
|------------------------|--------------------|---------|-------------------|--------------------|
| | Block 1 | Block 2 | Block 3 | Block 4 |
| Gender | -0.11 | -0.13* | -0.11 | -0.06 |
| Seniority | 0.04 | 0.03 | 0.03 | 0.04 |
| Dysphoria | – | 0.15* | 0.07 | 0.02 |
| Anxiety and depression | – | -0.05 | -0.12 | -0.22 [†] |
| Loss of confidence | – | 0.09 | 0.09 | 0.10 |
| Work-related bullying | – | – | 0.13 | 0.02 |
| Personal bullying | – | – | 0.08 | -0.03 |
| Supervisor support | – | – | – | 0.15* |
| Job demand | – | – | – | 0.10 |
| Lack of job control | – | – | – | 0.02 |
| Colleagues support | – | – | – | 0.06 |
| Role conflict | – | – | – | 0.30 [‡] |
| R ² | 0.00 | 0.02* | 0.04 [†] | 0.18 [‡] |
| ΔR ² | – | 0.02* | 0.02* | 0.14 [‡] |

* $p < 0.05$.

[†] $p < 0.01$.

[‡] $p < 0.001$.

mental health in the second block, workplace bullying in the third block, and stress factors in the fourth block. In the first block, demographics accounted for <1% of the variance in job demand and the model was not significant. When the dimensions of mental health and bullying were added in the second block and third block, the model was significant, and these dimensions accounted for 7% and 3% increase in variance, respectively ($R^2 = 0.10$, $p < 0.001$). Finally, when leaders' stress perception was added in the fourth block, the model was significant, and stress dimensions accounted for the 10% increase in variance (total $R^2 = 0.20$, $p < 0.001$).

Further regression analysis (see Tables 4–6) was conducted with lack of job control, lack of colleague support, and role conflict (leaders' evaluations of subordinates' stress) as dependent variables. Leaders' stress perception accounted for the 2% ($\Delta R^2 = .02$), 10% ($\Delta R^2 = 0.10$, $p < 0.001$), and 15% ($\Delta R^2 = 0.15$, $p < 0.001$) increase in variance in the models, respectively.

Finally, it is worthwhile to note that there is congruence of stress between leader self-assessment and the leaders' evaluation of their

collaborators, excluding lack of job control. (see Tables 2–6): lack of supervisor support ($b = 0.15$, $p < 0.05$), job demand ($b = 0.38$, $p < 0.001$), lack of colleagues support ($b = 0.34$, $p < 0.001$), and role conflict ($b = 0.28$, $p < 0.001$).

4. Discussion

Stress is a subjective phenomenon; what is perceived as a stressful stimulus for one person might be a challenge for another. Being stressed is an intangible phenomenon and consequently it is difficult for supervisors to understand subordinates' stress [4,11]. Our results show that leaders' evaluation of subordinates seems to be influenced by their own stress perception.

4.1. Stress evaluation and leaders' own stress perception

In our study, four out of the five regression models performed in this study seemed predictive. In our study, > 20% of the variance of the stress evaluations of subordinates made by leaders was explained by leader self-assessment.

From this line of research, there is evidence that the stress evaluation, rather than solely depending on leaders' understanding subordinates' stress, is associated with the leaders' own stress perception. Leaders might overestimate their own time pressure, their team atmosphere perceptions, or the design of the tasks in evaluating the subjective perception of subordinates' stress.

In addition, the incremental validity of stress dimensions with respect to mental health problems and bullying was confirmed, because leaders' perception of stress accounted for a significant percentage of the incremental variance of the GHQ-12 and NAQ-R.

Closer analysis of the specific contribution of each leader stress dimension in the evaluation of subordinates' stress underlines the potential impact of a perceptual congruence effect. Leaders' jobs demands, lack of supervisors' and colleagues' support and role ambiguity had a strong impact ($p < 0.001$) on the same dimensions evaluated for their subordinates over GHQ-12, NAQ-R and demographics.

4.2. Impact of job demand

Higher job demand perceived by leaders is associated with higher rating of subordinates' working pressure. On the one hand, it is possible that leaders who suffer from job demand are more likely to have employees who also report stress. On the other hand, if we consider that leaders seem to report higher levels of stress tolerance [26,27] than subordinates and a low level of awareness of many subordinate stress problems, our findings seem not to be exclusively negative, as job demand may stimulate the development of active jobs or challenge stressors. Indeed, many leaders work in a constantly high pressure environment and often do not recognize or underestimate the stress responses of their collaborators. However, this issue should be investigated further.

4.3. Impact of role conflict and lack of colleagues support

If leaders experience role conflict or lack of colleague support, they evaluate the stress of their collaborators more negatively. Leaders' ratings seem influenced by their dysfunctional relationships (lack of colleague support and personal bullying) in evaluating their subordinates' role conflicts and lack of colleague support, potentially overestimating the role of emotions. Accordingly, leaders seem to be contagious in relationships with their subordinates [28,29] and subordinates might converge their emotions with those manifested by leaders, increasing leaders'

Table 3
Hierarchical regression with job demand as criterion variable

| Predictors | Job demand | | | |
|------------------------|------------|-------------------|-------------------|-------------------|
| | Block 1 | Block 2 | Block 3 | Block 4 |
| Gender | 0.02 | -0.03 | 0.00 | 0.00 |
| Seniority | -0.02 | -0.04 | -0.04 | -0.05 |
| Dysphoria | – | 0.13 | 0.08 | 0.08 |
| Anxiety and depression | – | 0.16* | 0.10 | -0.04 |
| Loss of confidence | – | 0.03 | 0.03 | 0.06 |
| Work-related bullying | – | – | 0.23 [†] | 0.11 |
| Personal bullying | – | – | -0.07 | -0.10 |
| Supervisor support | – | – | – | 0.01 |
| Job demand | – | – | – | 0.38 [‡] |
| Lack of job control | – | – | – | 0.01 |
| Colleagues support | – | – | – | -0.06 |
| Role conflict | – | – | – | 0.12 |
| R ² | 0.00 | 0.07 [‡] | 0.10 [‡] | 0.20 [‡] |
| ΔR ² | – | 0.07 [†] | 0.03* | 0.10 [‡] |

* $p < 0.05$.

[†] $p < 0.01$.

[‡] $p < 0.001$.

Table 4
Hierarchical regression with lack of job control as criterion variable

| Predictors | Lack of job control | | | |
|------------------------|---------------------|-------------------|---------|---------|
| | Block 1 | Block 2 | Block 3 | Block 4 |
| Gender | -0.03 | -0.05 | -0.04 | -0.03 |
| Seniority | 0.00 | 0.00 | 0.00 | 0.00 |
| Dysphoria | - | 0.18 ⁱ | 0.18* | 0.15* |
| Anxiety and depression | - | 0.06* | 0.02 | -0.03 |
| Loss of confidence | - | -0.11 | -0.11 | -0.09 |
| Work-related bullying | - | - | 0.01 | 0.03 |
| Personal bullying | - | - | 0.06 | 0.00 |
| Supervisor support | - | - | - | -0.01 |
| Job demand | - | - | - | 0.11 |
| Lack of job control | - | - | - | 0.15 |
| Colleagues support | - | - | - | -0.01 |
| Role conflict | - | - | - | 0.07 |
| R ² | 0.00 | 0.02* | 0.02 | 0.04* |
| ΔR ² | - | 0.02* | 0.00 | 0.02 |

*p < 0.05.

ⁱp < 0.01.

evaluation bias. This might especially be the case with emotional cultures, like in Italy, which encourage expression of emotion as it relates to others. The strong link of emotions with work-related stress among Italians has also been noted by the European Foundation for the Improvement of Working Living Conditions, European Quality of Life Survey 2012 [30], particularly in terms of lower optimism and happiness. Nevertheless, cultural issues should be investigated further since, in this study, no cultural variables were measured.

4.4. Impact of lack of supervisors' support

Interesting results emerged from the model that predicted supervisor support. It is worthwhile to note that higher scores of GHQ seem to influence the negative evaluations of subordinates' stress made by leaders. However, in regards to the prediction of supervisor support, anxiety and depression are associated positively with evaluations of subordinates' stress. Anxious leaders seem to evaluate the lack of collaboration of supervisors as not as stressful as

Table 5
Hierarchical regression with colleagues support as criterion variable

| Predictors | Colleagues support | | | |
|------------------------|--------------------|-------------------|-------------------|-------------------|
| | Block 1 | Block 2 | Block 3 | Block 4 |
| Gender | 0.01 | 0.02 | 0.00 | 0.01 |
| Seniority | 0.03 | 0.02 | 0.01 | -0.03 |
| Dysphoria | - | 0.16* | 0.15* | 0.10 |
| Anxiety and depression | - | 0.11 | -0.01 | -0.08 |
| Loss of confidence | - | -0.03 | -0.03 | -0.01 |
| Work-related bullying | - | - | 0.05 | -0.03 |
| Personal bullying | - | - | 0.27 [†] | 0.16* |
| Supervisor support | - | - | - | 0.00 |
| Job demand | - | - | - | 0.03 |
| Lack of job control | - | - | - | 0.05 |
| Colleagues support | - | - | - | 0.34 [‡] |
| Role conflict | - | - | - | 0.01 |
| R ² | 0.00 | 0.05* | 0.12 [‡] | 0.22 [‡] |
| ΔR ² | - | 0.05 [†] | 0.07 [‡] | 0.10 [‡] |

*p < 0.05.

[†]p < 0.01.[‡]p < 0.001.

leaders with less mental health problems do. However, this evaluation could be potentially biased. Indeed, the difficult situations that leaders might encounter in managing their collaborators might be considered deviant to the organization's goals and effectiveness [31], thereby inhibiting their capabilities to evaluate stress. Managers, especially when they feel particularly anxious, might believe it to be in their best economic interest to underestimate this subordinates' stressor.

4.5. Impact of job control

The model of job control did not seem sufficiently explicative. Several aspects of national industrial and economic structures, such as operational uncertainty [32], moderate the relationship between individuals' job control and their occupational health. Consequently, it is possible to hypothesize that these external variables might attenuate the perceived similarity effect found in the other models. Indeed, in Italy, for example, economic crisis effects are still present and many organizations are currently downsizing, increasing the risk of stress nonreporting due to the employees' fear of becoming unemployed.

In this complex scenario, lack of job control, as noted in a recent Italian study [33], might be perceived as a less serious stressor than before or less harmful than new stressors (such as the fear of the economic crisis) and, consequently, not fully manifested by subordinates or recognized by their leader.

4.6. Limitations and further research

Several limitations exist in this study. Firstly, longitudinal studies are needed to fully confirm the validity of our models and hypothesis. Secondly, it would be useful to evaluate the impact of the study's variables at group level instead of only measuring the individual level. Thirdly, subordinates' ratings are also needed to fully understand the leader-follower relationship. However, we believe that the incorporation of reports from supervisors made an important contribution to empirical research on stress, both for diagnosis and intervention purposes. Indeed, this study extends the research on stress and its consequence outcomes from self-assessment to the leader assessment. The necessity of innovating in the measurement of stress, in accordance with Decree 81/08, has also been advocated in recent Italian studies [34].

4.7. Practical implications

Such innovative perspectives provide useful insight for developing suitable organizational strategies to detect and counteract job stress. Increased knowledge about the congruence of stress between leader self-assessment and the leaders' evaluation of their collaborators may lead to a more correct development of interventions regarding stress reduction and management. Indeed, the results obtained suggest several practical implications.

First, managers should be made aware that their perception of subordinates' stress is influenced by their own well-being and stress. Managers should be trained to properly recognize their own stress and how it can influence their collaborators.

Second, stress management programs should include not only the most stressed employees, but also their managers. This will strengthen the effectiveness of such programs. Managers can better support employees if they first understand their own stress. To prevent stress, leaders must be guided in the direction of health management. Indeed, leaders who rate subordinates similar to themselves in terms of stress might perceive their view as accurate. Consequently, training and informing supervisors appears important for avoiding biased perception of stress. In that sense, as

Table 6
Hierarchical regression with role conflict as criterion variable

| Predictors | Role conflict | | | |
|------------------------|---------------|-------------------|-------------------|-------------------|
| | Block 1 | Block 2 | Block 3 | Block 4 |
| Gender | –0.04 | –0.07 | –0.05 | –0.02 |
| Seniority | 0.07 | 0.06 | 0.05 | 0.09 |
| Dysphoria | – | 0.26 [‡] | 0.24 [†] | 0.14* |
| Anxiety and depression | – | 0.00 | –0.09 | –0.13 |
| Loss of confidence | – | 0.01 | 0.01 | 0.02 |
| Work-related bullying | – | – | 0.08 | 0.01 |
| Personal bullying | – | – | 0.15* | 0.00 |
| Supervisor support | – | – | – | –0.02 |
| Job demand | – | – | – | –0.01 |
| Lack of job control | – | – | – | 0.14 |
| Colleagues support | – | – | – | 0.17* |
| Role conflict | – | – | – | 0.28 [‡] |
| R ² | 0.00 | 0.08 [†] | 0.11 [‡] | 0.26 [‡] |
| ΔR ² | – | 0.08 [‡] | 0.03* | 0.15 [‡] |

**p* < 0.05.

[†]*p* < 0.01.

[‡]*p* < 0.001.

Kelloway and Barling [35] noted, “There is consistent evidence linking leadership in organizations to the psychological well-being of employees”. Moreover, these authors, after reviewing several interventions on leadership development and its relation to health and well-being outcomes, concluded that interventions designed to improve leadership would constitute a psychosocial and socio-technical intervention that enhances occupational health and safety in organizations.

Finally, our findings present implications for improving work-related stress risk management, also in light of the current Italian methodological guidelines [36]. On the one hand, evaluating stress using ratings of leaders might attenuate the effects of self-evaluations bias and further potential distortions which might be particularly widespread in countries like Italy, where the legislation provides a mandatory assessment of work-related stress. The actual mandatory assessment provides a preliminary phase of “objective evaluation” by the employer and safety and health representatives, based on the fulfillment of a standardized check list. On the other hand, we believe that the “objective evaluation” of work-related stress could be improved by taking fully into consideration evaluations bias, such as the congruence/similar effect found in this study. Thus, an increased leaders' awareness of the influence that their own perception of stress might have on the evaluation processes could stimulate a more reliable compilation of the check list and, consequently, a more accurate organizational diagnosis of this widespread and severe problem. In conclusion, healthy leadership, which is an important predictor of employee well-being [37,38], should be stimulated by training leaders to better understanding their own stress, in order to provide a proper stress evaluation of their organizations.

Conflicts of interest

The authors declare no conflicts of interest and that no funding was received for this research.

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