

## WHY IS PERFECTIONISM A RISK FACTOR FOR WORKAHOLISM? THE MEDIATING ROLE OF IRRATIONAL BELIEFS AT WORK

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This study investigates the role of irrational beliefs at work in two samples of workers. The first aim was to evaluate the psychometric properties of an Italian adaptation of the Work-related Irrational Beliefs Questionnaire (WIB-Q; Van Wijhe, Peeters, & Schaufeli, 2013). Several confirmatory factor analyses (CFAs), including multiple-group CFAs, supported the four-factor structure (i.e., performance demands, coworkers' approval, failure, and control) of the WIB-Q in both samples. Additionally, the WIB-Q showed satisfactory convergent, discriminant, and criterion-related validity. The second aim of this study was to test a theoretical model in which irrational beliefs at work mediate the association between two dimensions of perfectionism — self-oriented perfectionism (SOP) and socially prescribed perfectionism (SPP) — and workaholism. Failure mediated the association between SOP/SPP and workaholism, whereas the mediating effect of performance demands was marginally significant. Overall, the results of this study suggest that interventions aimed at preventing workaholism should target perfectionists' work-related irrational beliefs related to failure and performance demands.

**Key words:** Work-related irrational beliefs; Self-oriented perfectionism; Socially prescribed perfectionism; Workaholism; Mediating effect.

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Workaholism may be defined as “the tendency to work excessively hard in a compulsive way” (Schaufeli, Taris, & Bakker, 2008, p. 204). Accordingly, the authors identified two core dimensions of the construct, that is, working excessively (i.e., working beyond what is expected to meet organizational or economic requirements) and working compulsively (i.e., thinking persistently and frequently about work). The former represents the behavioral, whereas the latter represents the cognitive component of workaholism. Workaholism is characterized by the combination of high levels of both working excessively (WE) and working compulsively (WC) (Schaufeli, Bakker, van der Heijden, & Prins, 2009).

Recent studies suggested that workaholism and work engagement (i.e., “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption”; Schaufeli, Salanova, González-Romá, & Bakker, 2002, p.74) should be considered as different types of heavy work investment (Schaufeli, 2016; Shimazu, Schaufeli, Kamiyama, & Kawakami, 2015). Indeed, although workers with high scores on work engagement or workaholism dedicate a lot of time and energy to their work, the former are basically intrinsically motivated, whereas the latter are fueled by extrinsic motivation (Van Beek, Hu, Schaufeli, Taris, & Schreurs, 2012). Furthermore, work engagement is associated with positive outcomes (e.g., life satisfaction, job performance; Barbieri, Dal Corso, Di Sipio, De Carlo, & Benevene, 2016; Shimazu et al., 2015), whereas workaholism is predominantly associated with negative outcomes, such as physical and psychological symptoms, sickness absenteeism and presenteeism, cardiovascular risk, and sleep problems (Falco et al., 2013; Girardi, Falco, Piccirelli, et al., 2015; Kubota et al., 2010; Salanova et al., 2016; for a recent review see also Andreassen, 2014).

Previous studies suggested that several factors, including personal and situational variables, might lead to the onset of workaholism (Liang & Chu, 2009; McMillan & O’Driscoll, 2008; Ng, Sorensen, & Feldman, 2007; Spurk, Hirschi, & Kauffeld, 2016), similarly to what has been described for work-related stress and burnout (Bélanger et al., 2016; Girardi, Falco, De Carlo, et al., 2015). Among these, perfectionism has received considerable attention (Clark, Michel, Zhdanova, Pui, & Baltes, 2016; Spence & Robbins, 1992; see also Stoeber & Damian, 2016, for a review). Perfectionism may be defined as striving for exceedingly high, often unrealistic standards of performance, accompanied by frequent thoughts about the accomplishment of these standards and excessively critical evaluation of one’s own behavior (Flett & Hewitt, 2002; Frost, Marten, Lahart, & Rosenblate, 1990; Sirois & Molnar, 2016). Several authors conceptualize perfectionism as a multidimensional construct, although there is no consensus about the central features of the construct (Frost et al., 1990; Hewitt & Flett, 1991; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). According to the influential model proposed by Hewitt and Flett (1991), the one adopted in this study, perfectionism encompasses interpersonal as well as intrapersonal aspects and comprises three dimensions, namely self-oriented perfectionism (SOP; i.e., setting extremely high standards for oneself), socially prescribed perfectionism (SPP; i.e., the attainment of unrealistically high standards imposed by significant others), and other-oriented perfectionism (OOP; i.e., setting excessively high and often unrealistic standards for other people).

Moreover, previous studies have shown that dimensions of perfectionism taken from different theoretical models reflect two underlying factors, namely perfectionistic strivings and perfectionistic concerns (Bieling, Israeli, & Antony, 2004; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). Perfectionistic strivings (PS) subsume the tendency to set unrealistically high personal standards and to expect nothing less than perfection from oneself. Perfectionistic con-

cerns (PC) capture aspects of perfectionism related to concerns over making mistakes, excessive preoccupation about negative evaluation by others, and an exceptionally critical appraisal of one's own behavior. Indicators of perfectionistic strivings include, among others, SOP, whereas SPP reflects perfectionistic concerns (Sirois & Molnar, 2016; Stoeber & Damian, 2016; Stoeber & Otto, 2006). Interestingly, indicators of PS are typically associated with adaptive characteristics and outcomes (e.g., conscientiousness, problem-focused coping, well-being, and satisfaction with life), whereas facets reflecting PC are often related to maladaptive characteristics and outcomes, such as neuroticism, avoidant coping, and reduced well-being (Bieling et al., 2004; Cox, Enns, & Clara, 2002; Gnilka, Ashby, & Noble, 2012).

Altogether, several empirical studies showed that perfectionism is positively associated with workaholism. Indeed, in a recent meta-analysis Clark et al. (2016) found a positive, strong correlation between perfectionism and workaholism. However, previous studies have at least two limitations. First, past research usually examined the association between overall perfectionism and workaholism, and did not consider possible differences between perfectionistic strivings and concerns, albeit with some exceptions. In this regard, some previous studies showed that both perfectionistic strivings and concerns are positively associated with workaholism, although results for PC were somewhat inconsistent across studies (Clark, Lelchhook, & Taylor, 2010; Falco, Piccirelli, Girardi, Di Sipio, & De Carlo, 2014; Stoeber, Davis, & Townley, 2013). Second, and perhaps most importantly, mechanisms that could explain the association between perfectionism and workaholism were not considered (for a recent review see Stoeber & Damian, 2016).

#### OVERVIEW OF THE STUDY

In this perspective, cognitive elements of trait perfectionism, such as perfectionistic cognitions and irrational beliefs (Flett, Hewitt, & Cheng, 2008; Flett, Nepon, & Hewitt, 2016) could act as possible mediators. In this study we focused on irrational beliefs, that is, illogical and rigid cognitions that are related to unrealistic demands about the self, other people, and the world in general, and that may lead to maladaptive consequences for the individual (Ellis, David, & Lynn, 2010). Previous studies showed that individuals with high levels of perfectionism have the tendency to endorse several irrational beliefs that reflect awfulizing, catastrophizing, difficulties in tolerating frustration, and the idea that self-worth depends on achievement and the approval by others (Flett & Hewitt, 2008), such as high self-expectations, demand for approval, and anxious overconcern (Flett, Hewitt, Blankstein, & Koledin, 1991; Flett et al., 2008; Watson, Simmons, Weathington, O'Leary, & Culhane, 2009). Moreover, irrational beliefs (e.g., "I must respect the deadline at all costs, or a disaster will happen," "If I delegate my work, it won't get done properly"), may play a central role in the development of workaholism (Burwell & Chen, 2002; Chen, 2006; Van Wijhe, Schaufeli, & Peeters, 2010), whose central element, according to Naughton (1987), is an irrational commitment to excessive work.

Tellingly, Van Wijhe, Peeters, and Schaufeli (2013) developed the first questionnaire that assess irrational beliefs in the work context, namely the Work-related Irrational Beliefs Questionnaire (WIB-Q). The instrument measures four different kinds of irrational beliefs regarding the work context, that is, performance demands, coworkers' approval, failure, and control. The WIB-Q focuses exclusively on the cognitive aspects of these beliefs (and not on the emotional

aspects; Terjesen, Salhany, & Sciutto, 2009), which are considered important for workaholism. Moreover, Van Wijhe et al. (2013) found that workaholism was positively correlated with each of the four work-related irrational beliefs, and that performance demands and failure were positively associated with workaholism in a structural regression model using latent variables. It appeared that performance demands were still positively associated with workaholism, after controlling for the effect of negative affect, whereas failure was not.

Overall, the aim of this study is twofold. Because to the best of the authors' knowledge there is no Italian validation of the WIB-Q (Van Wijhe et al., 2013), the first objective of this study is to evaluate the psychometric properties of the Italian adaptation of the WIB-Q. In this regard, the dimensionality, construct validity (convergent and discriminant validity), and measurement invariance of the WIB-Q were examined through confirmatory factor analyses. Moreover, to assess the criterion-related validity of the WIB-Q, the concurrent correlations between the four irrational beliefs at work and several theoretically related constructs were examined. These constructs, indicated in the literature as possible antecedents and consequences of irrational beliefs, were perfectionism (both SOP and SPP; Flett et al., 1991; Flett et al., 2008), negative affectivity (Davies, 2006; Popov, Majstorović, Matanović, Jelić, & Raković, 2016), anxiety and depressive symptoms (Chang & D'Zurilla, 1996; Ciarrochi, 2004; Nieuwenhuijsen, Verbeek, de Boer, Blonk, & van Dijk, 2010), and burnout (Balevre, Cassells, & Buzaianu, 2012; Ogai & Okayasu, 2010). The second aim consists of testing a theoretical model in which perfectionism (i.e., SOP and SPP) is positively associated with irrational beliefs at work (i.e., performance demands, coworkers' approval, failure, and control), which, in their turn, are positively associated with workaholism. Accordingly, we expect that irrational beliefs at work mediate the association between perfectionism and workaholism. It should be emphasized that, to the best of our knowledge, this is the first study to investigate the mediating role of irrational beliefs at work in the relationship between perfectionism and workaholism, although other studies considered other possible mediators such as work motivation (Stoeber et al., 2013). Finally, in this research we focused solely on SOP and SPP since other-oriented perfectionism neither reflects perfectionistic strivings nor perfectionistic concerns (Stoeber & Otto, 2006).

## METHOD

### Participants and Procedure

The current study examined two samples: (1) workers from different organizations (S1;  $N = 506$ ) and (2) workers from a private company in the metal engineering sector (S2;  $N = 264$ ). Participants from S1 were approached by trained research assistants and invited to complete an anonymous questionnaire (paper-and-pencil) about their work experience. This sample consisted of 289 women (57.1%) and 216 men (42.7%; one gender missing, 0.2%). The majority of the respondents were younger than 40 years (38.7%), 31.8% were older than 50 years, and 27.9% were aged between 40 and 50 years (eight missing data, 1.6%). Most participants worked in the private service sector (47%), followed by industry (15.2%), education (8.3%), healthcare (8.1%), and the public sector (7.3%) whereas 13.3% of the respondents worked in other sectors (four missing data, 0.8%). The majority of the respondents (77.5%) had a permanent contract (17 missing data,

3.4%) and 77.1% were employed full-time (three missing data, 0.6%). With respect to work experience, 37% had been with their current company for five to 19 years, 31.2% for more than 19 years, and 28.4% for less than five years (17 missing data, 3.4%).

With respect to S2, workers were administered a standardized questionnaire (paper-and-pencil) as part of a work-related stress risk assessment. This sample consisted of 168 men (63.6%) and 82 women (31.1%; 14 missing data, 5.3%). The majority of the respondents were aged between 40 and 50 years (45.1%), 27.7% were younger than 40 years, and 22.7% were older than 50 years (12 missing data, 4.5%). Most of the participants were blue-collar workers (50.4%), followed by white-collar workers (34.8%), and managers (11%; 10 missing data, 3.8%). With respect to work experience, 51.6% had been with the company for five to 19 years, 36.7% for more than 19 years, and 6.8% for less than five years (13 missing data, 4.9%). For both S1 and S2, the questionnaire was administered anonymously, and participants took part in the study on a voluntary basis.

### Measures

To assess the constructs under investigation, the following self-report measures were used.

*Irrational beliefs at work* were assessed in both S1 and S2 using the Work-related Irrational Beliefs Questionnaire (WIB-Q; Van Wijhe et al., 2013). The original scale items were translated into Italian by the authors. Subsequently, an English native-speaker translator performed back-translation, to avoid discrepancies between the English and Italian version of the WIB-Q. The scale is composed of 16 items and measures four types of work-related irrational beliefs (four item each), namely performance demands (Cronbach's alpha was .81 in S1, and .74 in S2), coworkers' approval ( $\alpha$  was .87 in S1, and .84 in S2), failure ( $\alpha$  was .83 in both S1 and S2), and control ( $\alpha$  was .86 in S1, and .87 in S2). The response scale ranged from 1 (*completely disagree*) to 5 (*completely agree*).

*Perfectionism* was assessed in both S1 and S2 using an Italian adaptation (Falco et al., 2014) of a short version of the Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991). The scale is composed of seven items and measures self-oriented perfectionism (SOP, three items;  $\alpha$  was .81 in S1, and .85 in S2) and socially prescribed perfectionism (SPP, four items;  $\alpha$  was .82 in S1, and .73 in S2), which reflect perfectionistic strivings and concerns, respectively. The response scale ranged from 1 (*strongly disagree*) to 6 (*strongly agree*).

*Workaholism* was assessed in S1 using the Dutch Workaholism Scale (DUWAS; Schaufeli et al., 2008) in the Italian adaptation (Falco et al., 2012; Kravina, Falco, Girardi, & De Carlo, 2010; see also Balducci, Avanzi, Consiglio, Fraccaroli, & Schaufeli, 2015; Mazzetti, Schaufeli, & Guglielmi, 2016). The scale is composed of 10 items, designed to detect the two dimensions of WE (six items;  $\alpha$  was .80) and WC (four items;  $\alpha$  was .87). The 6-point response scale ranged from 1 (*strongly disagree*) to 6 (*strongly agree*). Since workaholism reflects tendency to work excessively hard in a compulsive way (Schaufeli et al., 2009), an overall workaholism score was used. Cronbach's alpha for the overall scale was .86.

*Anxiety and depressive symptoms* were assessed in S2 using two scales taken from the Qu-Bo test, a standardized instrument developed for the Italian context (De Carlo, Falco, & Capozza, 2008). The psychometric properties of the scales taken from the Qu-Bo test are de-



scribed in Trifiletti, Vianello, and Capozza (2013). This scale is composed of seven items, designed to detect anxiety (three items;  $\alpha$  was .80) and depressive symptoms (four items;  $\alpha$  was .68). The scales assessed how often specific anxiety or depressive symptoms occurred in the past six months, and the response scale ranged from 1 (*never*) to 6 (*every day*).

*Burnout* was determined in S2 using the scale taken from the Qu-Bo test (De Carlo et al., 2008). The nine-item scale includes three subdimensions, measured by three items each: exhaustion ( $\alpha$  was .85), cynicism ( $\alpha$  was .88), and reduced sense of personal accomplishment ( $\alpha$  was .84). This scale has been developed and tested in the Italian context and support has been found for reliability, validity, and the factor structure. Answers were provided on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*).

*Negative affectivity* was assessed in S2 using a scale taken from the Qu-Bo test (De Carlo et al., 2008). The scale is composed of four items with a response scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Cronbach's alpha was .80.

The psychometric properties of the scales used in the present study were evaluated through several confirmatory factor analyses (CFAs), whose results are described in the Results section of this paper.

### Data Analysis

The psychometric properties of the WIB-Q were evaluated in terms of factor structure, construct validity, criterion-related validity, and measurement invariance across two different samples of workers (MacKenzie, Podsakoff, & Podsakoff, 2011; Vandenberg & Lance, 2000). Firstly, dimensionality and construct validity, in terms of convergent and discriminant validity, were examined in both S1 and S2 through CFA using LISREL 8.80 (Jöreskog & Sörbom, 2006). Additionally, for each dimension of the WIB-Q the coefficient average variance extracted (AVE) was calculated, which represents the average amount of variation that a latent construct explains in the observed variables, to which it is theoretically related (Fornell & Larcker, 1981). AVE can be used to assess both convergent and discriminant validity. A good convergent validity is verified when all indicators load significantly on their respective latent construct, and AVE scores equal to or higher than .50 for each dimension indicate a good convergent validity. In addition, two dimensions can be considered distinct (i.e., discriminant validity) if the AVE of each of them is higher than the squared correlation between the two dimensions (i.e., shared variance).

Additionally, the measurement invariance across both samples (i.e., S1 and S2) was examined through a multiple-group CFA approach (Vandenberg & Lance, 2000; see also Barbaranelli, 2013; Brown, 2015). More specifically, several increasingly constrained models were tested in a sequential way (i.e., stepwise) to assess different levels of measurement invariance, that is, configural invariance, metric invariance, and invariance of factor variances and covariances (Vandenberg & Lance, 2000).

To evaluate the goodness-of-fit of the CFA models, the  $\chi^2$  test was used. A model shows a good fit to data if  $\chi^2$  is nonsignificant. However, since the  $\chi^2$  is affected by sample size, three additional fit indices were used: the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the standardized root mean squared residual (SRMR). More specifically, values close to or smaller than .08 for RMSEA and SRMR and values close to or

greater than .90 for CFI indicate an acceptable model fit, whereas values close to .06 and .95 for RMSEA and CFI, respectively, indicate good fit (Bentler, 1990; Brown, 2015; Browne & Cudeck, 1993; Hu & Bentler, 1999). Furthermore, the chi-square difference test ( $\Delta\chi^2$ ) was adopted to assess the tenability of equality constraints in multiple-group CFAs, because a model with constraints is nested in the model without constraints. Accordingly, if the chi-square difference is nonsignificant, the more parsimonious model (i.e., the one with constraints) should be preferred over the less parsimonious one (i.e., the one without constraints). Moreover, as reported above, to assess the criterion-related validity of the WIB-Q, the concurrent correlations between the four irrational beliefs at work and the theoretically related constructs (i.e., perfectionism, negative affectivity, anxiety and depressive symptoms, and burnout) were examined in S2.

Finally, to test the hypothesized relationships between perfectionism, irrational beliefs at work, and workaholism, a structural equation model with observed variables (i.e., path analysis) was estimated in S1 using LISREL 8.80 (Jöreskog & Sörbom, 2006). The structural paths were freely estimated, to test both direct and indirect effects simultaneously (just-identified path models; Kline, 2011). To test the significance of the indirect effect of perfectionism on workaholism through irrational beliefs at work (i.e., mediation), we computed asymmetric confidence intervals for the indirect effect based on the distribution of product method using the RMediation package (Tofghi & MacKinnon, 2011). If a confidence interval does not contain zero, then a statistically significant mediation is supported (MacKinnon, Cheong, & Pirlott, 2012).

Finally, missing values were considered. For CFAs, participants with missing values on any of the items of the WIB-Q were removed from the dataset (i.e., listwise deletion). The final samples for CFAs comprised, therefore, 440 workers for S1 (180 missing values, 2.2%) and 223 workers for S2 (165 missing values, 3.9%). With respect to criterion-related validity of WIB-Q (S2) and path analysis (S1) missing values were estimated using the person-mean substitution approach, a technique designed for handling missing data when composite scores are used (Downey & King, 1998). More specifically, participants with more than 50% of missing items on a given scale were excluded from subsequent analyses (Hawthorne & Elliott, 2005). Next, missing values within a given scale were replaced by the mean of each individual's completed items in that scale (person-mean imputation; Bono, Ried, Kimberlin, & Vogel, 2007; Downey & King, 1998). Overall, 119 missing values were imputed for S1 ( $N = 474$ , 0.8%), whereas 95 were imputed for S2 ( $N = 228$ , 1%).

## RESULTS

The first aim of this study was to evaluate the psychometric properties of an Italian adaptation of the WIB-Q. Therefore, two CFAs were carried out, to test the original four-factor model (16 items) proposed by Van Wijhe et al. (2013) in both S1 and S2. The fit indices showed an acceptable fit to data for both S1 —  $\chi^2(98) = 347.47$ ,  $p < .01$ ; RMSEA = .076; CFI = .935; SRMR = .068 — and S2 —  $\chi^2(98) = 218.31$ ,  $p < .01$ ; RMSEA = .074; CFI = .929; SRMR = .081. However, Item 16 showed a low standardized factor loading in both samples. Moreover, an inspection of the modification indices revealed substantial cross loadings for Items 1 and 13 in both S1 and S2. Accordingly, these three items were removed, and a new CFA was carried out. The fit indices of the remaining 13 items showed a good fit to data for both S1 —  $\chi^2(59) = 162.98$ ,  $p < .01$ ;

RMSEA = .063; CFI = .966; SRMR = .046 — and S2 —  $\chi^2(59) = 123.12, p < .01$ ; RMSEA = .070; CFI = .949; SRMR = .059. The AVE was greater than .50 for each dimension of the WIB-Q in both S1 and S2, and equal to .50 for performance demands in S2. Moreover, the AVE for each subscale was higher than the shared variance between each couple of latent factors. Hence, overall, the WIB-Q scale showed satisfactory convergent and discriminant validity.

Next, the measurement invariance of the WIB-Q across both samples was examined through a multiple-group CFA approach. First, configural invariance was tested, and the model showed a good fit to data,  $\chi^2(118) = 286.10, p < .01$ ; RMSEA = .066; CFI = .974. Accordingly, configural invariance was supported. In the second step, factor loadings were constrained to be equal across groups. This model showed a good fit to data,  $\chi^2(127) = 296.13, p < .01$ ; RMSEA = .063; CFI = .974. Additionally, the fit of this model was not significantly worse than the fit of the less constrained model (i.e., the configural invariance model),  $\Delta\chi^2(9) = 10.03, p = .35$ , and therefore metric invariance was supported. Finally, factor variances and covariances were constrained to be equal across groups. This model also showed a good fit to data,  $\chi^2(137) = 316.03, p < .01$ ; RMSEA = .062; CFI = .973, but the fit of this model was worse than the fit of the previous one,  $\Delta\chi^2(10) = 19.90, p = .03$ . An inspection of the modification indices showed that the covariance between control and failure should be freely estimated (i.e., partial measurement invariance; Byrne, Shavelson, & Muthén, 1989). Accordingly, a new CFA was carried out, and the fit indices showed a good fit to data,  $\chi^2(136) = 311.44, p < .01$ ; RMSEA = .062; CFI = .973. Moreover, the fit of this re-specified model was not significantly worse than the fit of the less constrained model (i.e., metric invariance),  $\Delta\chi^2(9) = 15.31, p = .08$ . Therefore, factor loading, variances, and covariances were invariant across S1 and S2, except for the covariance between control and failure, which was larger in S1 ( $r = .56$ ) than in S2 ( $r = .42$ ). The common metric completely standardized solution is summarized in Table 1.

To investigate the criterion-related validity of the WIB-Q, the correlations between the four dimensions of irrational beliefs at work and several theoretically related constructs (i.e., perfectionism, negative affectivity, anxiety and depressive symptoms, and burnout) were examined in S2. Prior to examining these correlations, a CFA was carried out to investigate the psychometric properties of the scales adopted for this purpose (except for the WIB-Q, whose psychometric properties in S2 are described above). The hypothesized model included 27 items and eight latent factors, namely SOP, SPP, negative affectivity, anxiety symptoms, depressive symptoms, and the three dimensions of burnout. Because several scale items (e.g., depressive symptoms, burnout) were not normally distributed, the robust maximum likelihood was adopted as the estimation method. Therefore, to assess model fit, the scaled Satorra-Bentler chi-square test ( $SB\chi^2$ ) was used. The model showed a good fit to data,  $SB\chi^2(296) = 437.61, p < .01$ ; RMSEA = .046; CFI = .968; SRMR = .073. Moreover, all items loaded substantially on their respective factors (median standardized factor loading of .80), and correlations between latent factors ranged from .0 to .80 (between emotional exhaustion and depressive symptoms).

Next, the correlations between the WIB-Q and the other constructs in the nomological network (i.e., perfectionism, negative affectivity, anxiety and depressive symptoms, and burnout) were analyzed, and results are reported in Table 2. Overall, the two dimensions of failure and control were positively associated with anxiety and depressive symptoms, burnout (except for cynicism), and negative affectivity. Moreover, failure was positively associated with both the dimensions of



TABLE 1  
Factor loading and correlations from the multiple-group confirmatory factor analysis of the WIB-Q:  
The common metric completely standardized solution

Item	Factor			
	Performance demands	Coworkers' approval	Failure	Control
Item 3	.71			
Item 4	.70			
Item 5	.84			
Item 6		.79		
Item 7		.65		
Item 9		.92		
Item 10		.82		
Item 11			.75	
Item 12			.84	
Item 14			.78	
Item 17				.69
Item 19				.88
Item 20				.89
	1	2	3	4
1. Performance demands	1			
2. Coworkers' approval	.37	1		
3. Failure	.43	.42	1	
4. Control	.09	.33	.56 (S1 <sup>a</sup> ) .42 (S2 <sup>b</sup> )	1

Note. <sup>a</sup>Sample 1,  $N = 440$ . <sup>b</sup>Sample 2,  $N = 223$ .

perfectionism, whereas control was positively associated with SPP (but not SOP). However, performance demands and coworkers' approval showed a somewhat different pattern of correlations. Indeed, performance demands were positively associated with perfectionism (both SOP and SPP) and negative affectivity, whereas coworkers' approval was positively associated with SPP (but not SOP), negative affectivity, and reduced sense of personal accomplishment. Overall, the WIB-Q showed reasonable criterion-related validity.

Finally, to test the hypothesized relationships between perfectionism, irrational beliefs at work, and workaholism, a path analysis model was estimated in S1. The results of this path analysis are represented in Figure 1. Prior to examining these associations, a CFA was carried out to investigate the psychometric properties of the scales adopted for this purpose, namely perfectionism and workaholism (except for the WIB-Q, whose psychometric properties in S1 are described above). Accordingly, the hypothesized model included 17 items and four latent factors, namely WE, WC, SOP, and SPP. The model showed an acceptable fit to data,  $\chi^2(113) = 359.05$ ,  $p < .01$ ;

TABLE 2  
Criterion-related validity of the WIB-Q: Correlations between study variables

	Irrational beliefs at work			
	Performance demands	Coworkers' approval	Failure	Control
Anxiety symptoms	.09	.01	.25***	.18**
Depressive symptoms	.11	-.04	.22**	.25***
Exhaustion	.09	.08	.24***	.19**
Cynicism	.13	.02	.10	.07
Reduced sense of personal accomplishment	.00	.25***	.29***	.32***
Self-oriented perfectionism	.53***	.08	.18**	-.11
Socially prescribed perfectionism	.48***	.21**	.40***	.17**
Negative affectivity	.18**	.22**	.45***	.37***

Note. Sample 2,  $N = 228$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

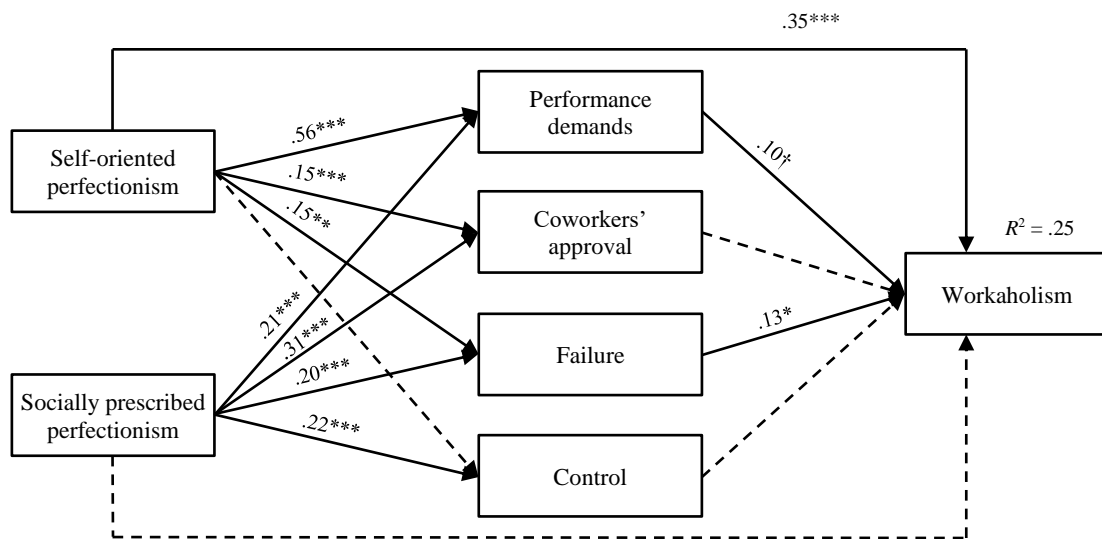


FIGURE 1  
The path analysis model in Sample 1 ( $N = 474$ ).  
Dashed lines represent nonsignificant paths.  
†  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

RMSEA = .068; CFI = .931; SRMR = .065. Moreover, all items loaded substantially on the respective factor (median standardized factor loading of .74), and correlations between latent factors ranged from .22 to .60. The correlations between workaholism, irrational beliefs at work, and perfectionism are summarized in Table 3.

In the path analysis model, SOP was positively associated with performance demands ( $\gamma = .56, p < .001$ ), coworkers' approval ( $\gamma = .15, p < .001$ ), and failure ( $\gamma = .15, p < .01$ ). Additionally, SPP was positively associated with performance demands ( $\gamma = .21, p < .001$ ), coworkers' approval



TABLE 3  
Correlations between workaholism, irrational beliefs at work, and perfectionism

	1	2	3	4	5	6	7	8	9
1. Working excessively	1								
2. Working compulsively	.53***	1							
3. Workaholism	.91***	.84***	1						
4. Performance demands	.30***	.39***	.39***	1					
5. Coworkers' approval	.11*	.20***	.17***	.37***	1				
6. Failure	.18***	.24***	.23***	.36***	.42***	1			
7. Control	.06	.03	.05	.14**	.36***	.51***	1		
8. Self-oriented perfectionism	.34***	.49***	.46***	.65***	.28***	.23***	.02	1	
9. Socially prescribed perfectionism	.21***	.28***	.27***	.44***	.37***	.26***	.19***	.40***	1

Note. Sample 1,  $N = 474$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

( $\gamma = .31, p < .001$ ), failure ( $\gamma = .20, p < .001$ ), and control ( $\gamma = .22, p < .001$ ). However, only failure was positively associated with workaholism, controlling for the effect of both SOP and SPP, ( $\beta = .13, p < .05$ ), whereas the association between performance demands and workaholism was positive but marginally significant ( $\beta = .10, p < .08$ ). Interestingly, SOP was positively associated with workaholism, controlling for the effect of irrational beliefs at work ( $\gamma = .35, p < .001$ ), whereas SPP was not.

The 95% asymmetric confidence intervals for the indirect effect of SOP/SPP on workaholism through failure did not contain zero. The unstandardized point estimate for SOP was .02, 95% CI [.002, .033], the same as unstandardized point estimate for SPP: .02, 95% CI [.004, .042]. Therefore, failure mediated the association between SOP/SPP and workaholism. Moreover, the 95% asymmetric confidence intervals for the indirect effect of SOP/SPP on workaholism through performance demands contained zero, thus suggesting a nonsignificant indirect effect. However, because the association between performance demands and workaholism was marginally significant, 90% asymmetric confidence intervals were also computed. The unstandardized point estimate for SOP was .04, 90% CI [.002, .085], whereas the unstandardized point estimate for SPP was .02, 90% CI [.001, .034]. Accordingly, the indirect effect of SOP/SPP on workaholism through performance demands was marginally significant.

Finally, to obtain a more parsimonious solution, an additional model was estimated, in which the four nonsignificant paths in the previous models were fixed to zero. This model showed a good fit to data:  $\chi^2(4) = 5.27, p = .26$ ; RMSEA = .025; CFI = .999; SRMR = .021. In this final model, all structural paths were significant, including the association between performance demands and workaholism ( $\gamma = .11, p < .05$ ).

## DISCUSSION

This study examined the role of irrational beliefs in the work context, and contributed to the understanding of the relationship between perfectionism and workaholism. First, we investigated the psychometric properties of an Italian adaptation of the Work-related Irrational Beliefs Questionnaire (WIB-Q; Van Wijhe et al., 2013). After removing three items that showed unsatisfactory characteristics (i.e., low factor loadings or cross-loadings), the hypothesized four-factor structure of the WIB-Q (i.e., performance demands, coworkers' approval, failure, and control) was partially invariant across two different samples of workers. More specifically, factor loading and factor variances/covariances were invariant, except for the covariance between control and failure, which was stronger in the first sample (i.e., a multi-occupational sample) than in the second one (i.e., a sample of workers from a private metal engineering company).

Moreover, the WIB-Q showed good construct (i.e., convergent and discriminant) as well as criterion-related validity. It should be noted that failure and control were concurrently and positively correlated with most of the constructs cited in the literature as possible antecedents and consequences of irrational beliefs, namely perfectionism (i.e., SOP and SPP), negative affectivity, anxiety/depressive symptoms, and burnout. Contrarily, performance demands and coworkers' approval were positively associated only with perfectionism (i.e., SOP/SPP) and negative affectivity, whereas the correlations with anxiety/depressive symptoms and burnout were not significant (except for the correlation between coworkers' approval and reduced sense of personal accomplishment). Basically, these results are in line with those of previous research. For example, specific irrational beliefs, namely self-directed shoulds and self-worth taken from the Survey of

Personal Beliefs (Demaria, Kassinove, & Dill, 1989), were not associated with anxiety or depressive symptoms in some studies (Chang & D’Zurilla, 1996; Culhane & Watson, 2003), whereas these associations were significant in other studies that included both clinical and nonclinical samples (Flett et al., 2008; Nottingham, 1992). Interestingly, on the one hand self-directed shoulds refer to inflexible demands directed toward the self, and share some conceptual similarity with performance demands from the WIB-Q. On the other hand, self-worth also reflects reduced self-ratings that result from evaluations by others, and is somewhat comparable to the coworkers’ approval scale of the WIB-Q. That being said, we believe this adaptation of the WIB-Q to be a valid instrument to assess irrational beliefs at work in the Italian context. This may have important practical implications in terms of prevention of workaholism, as discussed below.

The second aim of this study was to test a theoretical model in which irrational beliefs at work mediate the association between self-oriented/socially prescribed perfectionism and workaholism. This mediating effect was supported only for failure, whereas the mediating effect for performance demands was marginally significant. We believe these findings to be particularly interesting, because previous research has shown that workaholics perform work activities for their instrumental value (i.e., extrinsic motivation). More specifically, they work hard to preserve and improve feelings of self-worth and self-esteem, and avoid negative emotions (Van Beek et al., 2012; Van Beek, Taris, Schaufeli, & Brenninkmeijer, 2013). In this perspective, individuals with high levels of perfectionism tend to endorse irrational beliefs that reflect the fear of failure and the pursuit of exceedingly high standards of performance. In turn, these irrational beliefs, which identify conditions that have to be met to avoid negative emotions and protect self-worth, could be a risk factor for workaholism.

Overall, we believe that the results of this study make several contributions to the literature. First, our findings showed that both SOP and SPP, which reflect perfectionistic strivings and concerns, are associated, directly or indirectly, with workaholism. Interestingly, a common limitation of several previous studies on workaholism is that they examined overall perfectionism (Clark et al., 2016), and did not consider possible differences between perfectionistic strivings and concerns (with some exceptions; see for example Falco et al., 2014; Stoeber et al., 2013; Taris, Van Beek, & Schaufeli, 2010), which are typically associated with adaptive or maladaptive characteristics and outcomes, respectively.

Furthermore, this study highlights the role of cognitive elements of trait perfectionism, namely work-related irrational beliefs (Flett et al., 2008) that may mediate the association between perfectionism and workaholism. This means that perfectionism is related to workaholism because of the irrational beliefs (particularly as related to failure and performance demands) that it produces, which, in their turn are associated with workaholism. Overall, the findings of this study are in line with previous research, which showed that both SOP and SPP are positively associated with irrational beliefs (Flett et al., 1991, 2008). Moreover, our results are rather consistent with the ones reported by Van Wijhe et al. (2013), who also found that failure and performance demands are positively associated with workaholism. However, to the best of our knowledge, this is the first study to show the mediating role of specific work-related irrational beliefs (i.e., failure and performance demands) in the relationship between dimensions of perfectionism reflecting perfectionistic strivings and concerns (i.e., SOP and SPP) and workaholism.

Moreover, an intriguing finding of this study was that self-oriented perfectionism was positively associated with workaholism, after controlling for the effect of irrational beliefs at



work, whereas socially prescribed perfectionism was not. In other words, work-related irrational beliefs fully mediated the association between SPP and workaholism, whereas the mediation for SOP was partial. Accordingly, although work-related irrational beliefs seem to play a central role in the relationship between SPP and workaholism, other mechanisms (besides work-related irrational beliefs) could be responsible for the association between SOP and workaholism. In this perspective, future studies could investigate possible additional mediators such as work motivation (Stoeber et al., 2013), coping styles (Gnilka et al., 2012), and perfectionistic automatic thoughts (Flett, Hewitt, Nepon, & Besser, 2017; Flett, Newby, Hewitt, & Persaud, 2011). Moreover, according to the definition of workaholism as a syndrome characterized by the tendency to work excessively in a compulsive way, an overall score of workaholism was adopted in this study. Hence, future research could replicate and extend the results of this study by modeling workaholism as a latent variable reflected by WE and WC.

Among the limitations of this study, it should be noted that the cross-sectional design precludes drawing causal inferences. A future longitudinal investigation would be useful to examine the direction of the associations between perfectionism, work-related irrational beliefs, and workaholism. Moreover, the observed relationships could be affected by common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012), because the constructs were determined using the same measurement method (i.e., self-report questionnaires). Accordingly, future studies could use, for example, observer-rating of workaholism (Falco et al., 2012; see also Mazzetti et al., 2016).

Finally, we believe that this study has relevant practical implications for occupational psychologists and psychotherapists. Indeed, our results showed that perfectionism is, directly or indirectly (i.e., through work-related irrational beliefs), related to workaholism. However, perfectionism is a relatively stable trait, and perfectionists are relatively resistant to treatment (Flett & Hewitt, 2008). Therefore, interventions aimed at preventing workaholism should target the cognitive elements of trait perfectionism such as work-related irrational beliefs (as well as perfectionistic automatic thoughts; Flett et al., 2011), especially the ones related to failure and performance demands. More specifically, according to the rationale emotive behavior therapy (REBT) framework, workers should be encouraged to actively restructure their irrational beliefs (e.g., “I absolutely must perform well at work and obtain my supervisor’s approval, or else I have little worth as a person”) and to assimilate more functional rational beliefs (e.g., “I do not need to perform well at work, but I want it, and I will do my best to do so. However, if I perform badly and sometimes I do not get my supervisor’s approval, I’m not worthless, but I’m just a person who acted poorly in that situation”); Ellis et al., 2010). Using this framework could be a relevant implication of this study, because, as we pointed out before, previous research has shown that workaholics perform work activities for their instrumental value (i.e., extrinsic motivation). More specifically, they work hard to preserve and improve feelings of self-worth and self-esteem, and to avoid negative emotions (Van Beek et al., 2012, 2013).

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