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Articles

Work addiction and its association with personality traits, general distress, and self-esteem among adult Italian workers

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Abstract

Background: Work addiction has become a topic of increasing research interest but has been little studied in Italy. Therefore, the aim of the present study was to investigate the associations between work addiction, assessed with a recently validated psychometric scale (i.e., Italian version of Bergen Work Addiction Scale, [BWAS]) and other psychological constructs.

Methods: The sample comprised 367 Italian workers (Mean 16.11 years; SD±11.28) who completed a survey including the BWAS (Mean 19.422; SD±6.365), Depression Anxiety Stress Scales-21 (Mean 40.866; SD±29.865), Dutch Workaholism Scale (Mean 24.837; SD±6.488), Need for Recovery Scale (Mean 12.946; SD±7.340), Ten Item Personality Inventory (TIPI, Extraversion (Mean 4.253; SD±1.506); Agreeableness (Mean 5.431; SD±1.111), Conscientiousness (Mean 5.792; SD±1.067), Neuroticism (Mean 4.507; SD±1.480), Openness (Mean 4.801; SD±1.122), and Rosenberg's Self-Esteem Scale (Mean 21.850; SD±6.796).

Results: The results indicated that work addiction was positively associated with stress, anxiety, and depression, as well as with the number of hours worked and need for recovery. Moreover, BWAS scores explained 20.1% of an individual's general psychological distress (i.e., depression, anxiety, and stress). Personality variables explained only a small amount of the variance in work addiction (15.4%).

Conclusion: In the present study, a positive and significant association was found between the BWAS (assessing work addiction) and the DUWAS (assessing workaholism). Although work addiction and workaholism are different constructs, they have many characteristics in common. The study expands the work addiction literature base and demonstrates important associating factors in the Italian context.

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1. Introduction

The regulation of the maximum number of working hours per week is a relatively recent directive (Burke, 2001) that took place in the majority of western societies, especially since the welfare state became a relevant topic for governmental policies. For example, the European Union, including Italy (where the present study was carried out), has set a maximum of 48 hours that an employee can work in a week. However, according to the “Organization for Economic Co-operation and Development” report (2011) in Italy, more than 74% of workers exceed the set threshold. Moreover, according to ISTAT (Istituto Nazionale di Statistica [Italian National Institute of Statistics], 2011, 2016), more than 18% of Italian workers exceed working 50 hours per week, with some of them working seven days a week. The reasons for excessive work can be various, including both intrinsic aspects (such as the pleasure of the job) or extrinsic motivations (such as promotions and salary increases) (Barbieri, 2020; Brett & Stroth, 2003).

Several studies have found that occupational stress is influenced by long working hours. For example, Lee et al. (2017) in a Korean study found that those who worked long working hours (more than 60 hours per week) had increased odds of experiencing occupational stress compared to those who had shorter working hours (40-44 per week). Given that occupational stress is a pervasive issue in the world as well as in Italy (Dewe et al., 2012; Frisone, 2021; Michie, 2002; Stranks, 2005), more research attention is needed concerning the long working hours among employees.

Excessive working has often been conceptualized as ‘workaholism’ (Griffiths et al., 2018). Workaholism can be identified through the presence of specific drives that push individuals to work excessively. Going well beyond normal working hours is only one of the possible behaviors recognizable in workaholism (Kravina, 2012). The term ‘workaholism’ derived from

the combination of the words ‘work’ and ‘alcoholism’, and was introduced into the academic literature to denote a specific behavior described as the compulsion or uncontrollable need to work incessantly (Oates, 1971). Over the past 50 years, different definitions and constructs regarding workaholism have been proposed, and terms such as ‘workaholism’, ‘work addiction’, ‘compulsive working’, and ‘overwork’ have been used interchangeably. However, Griffiths et al. (2018) claimed that “work addiction is a psychological construct while workaholism is a more generic term” (p. 852). Despite these distinctions, the two terms are generally used synonymously.

The term ‘workaholism’ includes a wide range of theoretical underpinnings and in some studies is seen as a positive rather than a negative construct (Griffiths et al., 2018). While there is currently no consensus on the terminology to be used, the present paper uses the term ‘work addiction’ and refers to the construct outlined by Andreassen et al. (2014) and based on the components model of addiction (Griffiths, 2005). According to Griffiths (1996, 2005) all addictions appear to comprise six core components (Griffiths, 1996, 2005). The six components when applied to work are: salience (work is the most important thing in an individual’s life), mood modification (work is used to modify mood states), tolerance (increasing amounts of work are needed over time to gain mood modifying effects), withdrawal symptoms (e.g., restlessness and moodiness when unable to work), conflict (with relationships and other activities because of the work), and relapse (a tendency to revert to the work at high frequency/intensity following a period of normal working hours) (Griffiths, 1996, 2005). These components of addiction are consistent with criteria for addiction and dependence to behaviors such as gambling disorder that are officially recognized in formal diagnostic manuals (e.g., DSM-5, ICD-11).

In the present paper, the term ‘behavioral addiction’ refers to an individual’s addiction to engage in a particular activity, not drug-related, through which they feel gratified (usually in the short-term), despite any negative consequence (Goodman, 1990). Exercise, social media use, sex, and shopping are examples of those behaviors that can be potentially addictive (Alavi et al., 2012; Ferrante & Venuleo, 2021; Ferraro et al., 2020; Griffiths, 2005; Scala et al., 2017), even though none of these disorders (like work addiction) are recognized in international diagnostic manuals. This is due to several reasons, in particular (i) the lack of agreement between different researchers on the terminology to be used, and (ii) the lack of empirical evidence particularly in relation to nationally representative epidemiological research and neurobiological research.

The presence of a work addict in the workplace can have a negative impact both on colleagues and organization. A work addict's excessive dedication to work is not (generally) about achieving the organization's goals. Addiction might be a way that keeps individual busy and helps them escape from both personal and family responsibilities. This underlying motivation does not necessarily make the work addict an excellent worker (Robinson, 1998). Often, work addicts are rewarded with promotions and hold managerial positions, as an appreciation of their diligent and responsible behavior as well as for their commitment and dedication to work (Robinson, 1998). The relational style of the work addict who holds a managerial role can cause anxiety and fear among employees, who are pressured to meet an unsustainable schedule in the long run (Robinson, 1998). In addition, the work addict often has a fluctuating mood, makes promises that are not kept, and makes the business climate unpredictable and inconsistent (Porter, 1996). In particular, many work addicts are 'success-oriented', and like many other workers set high goals and love their work. However, unlike non-addicted workers, they reach their goals by victimizing others, disregarding the needs of others, and relying on the prejudice that no-one else works like them (Porter, 1996). Lifestyle is managed according to the pace of work meaning that family and other interests are neglected.

To date, work addiction has arguably been a relatively neglected and unrecognized phenomenon in the field of psychological distress. It is often considered only when associated with other psychological or physical problems, such as heart attacks, for which absolute work rest is prescribed (e.g., Atroszko et al., 2019). Work-addicted individuals have an excessive and compulsive need to work that can lead to hypertension, cardiovascular problems, insomnia, anxiety, binge eating, stress, low self-esteem, and depression, among others, all of which can cause conflicts between work and family life (Drønen, 2012).

Moreover, it has been suggested that work addiction shares similarities with other behavioral addictions (Andreassen et al., 2014) because excessive work can negatively affect an individual's workers' health, both physically and psychologically. Work-addicted individuals have an excessive and compulsive need to work that can lead to hypertension (i.e., very high blood pressure), cardiovascular problems, insomnia (i.e., inability to sleep), binge eating, stress (i.e., feelings of emotional/mental tension and strain), low self-esteem (i.e., lack of confidence in personal abilities), anxiety (i.e., feelings of unease, fear and worry), and depression (i.e., feelings of severe dejection and despondency), all of which can cause conflicts between work and family life (Drønen, 2012).

Generally, work addicts engage in their work even when they are at home or on vacation, and rarely admit to having a problem that should be seriously addressed (e.g., Atroszko et al., 2019; De Cesare, 2013). The addiction often has a negative impact on the family, and family members are often the first to notice the problem. (e.g., De Cesare, 2013; Quinones & Griffiths, 2015). Therefore, lacking substantial periods of rest, overworking can lead to a higher level of exhaustion and fatigue, both physical and mental (e.g., Balducci et al., 2021), and to a longer psychophysical need for recovery. This issue is particularly relevant among helping professions such as physicians and nurses (McGrath et al., 2022; Merlo et al., 2021).

Work addiction has been studied in relation to the Big Five personality traits: extraversion (e.g., outgoing, adventurous), agreeableness (e.g., empathetic, helpful, trusting), openness (e.g., independent, curious, wide-ranging interests), conscientiousness (e.g., organized, dependable, hardworking), and neuroticism (e.g., anxious, unhappy, prone to negative emotions) (Kun et al., 2020b). Although the results remain mixed (e.g., Andreassen et al., 2016; Kun et al., 2020a), a recent meta-analysis of 28 studies found that among the Big Five personality traits, conscientiousness, openness, and extraversion showed positive (albeit weak) relationships with work addiction (Kun et al., 2020b). Individuals who work in a hardworking obsessive manner would be expected to have higher levels of conscientiousness. At the same time, individuals who are more sensitive to rewards (and particularly to social rewards and recognition) try their best to get involved with other individuals in the workplace, and therefore might be expected higher levels of extroversion. Work-addicted individuals are also more likely to be independent and curious and therefore display higher levels of openness.

There are several theories that attempt to explain the mechanisms underlying behavioral addictions. For example, Skinner's (1974) learning theory postulates that work addiction can be explained by the principles of operant learning. In operant conditioning, the behavior of the work addict occurs and is repeated cyclically, either because a similar previous behavior has led to positive outcomes (e.g., praise, promotion, increased salary) or because the behavior has avoided negative outcomes (e.g., criticism from the leader, conflict at home, boring free time). The behavior of work addicts can also be explained by Bandura's (1986) theory of social learning. Here, an individual is influenced by observing the behavior of significant others (e.g., parents, colleagues, managers), so the consequences related to the behavior enacted by the model such as rewards (e.g., praise, salary increases) or punishments (e.g., decrease in work salary) have the same effects on the observer. This means that anyone has the potential to become a work addict. Emotional theories postulate work addiction as a phenomenon that

arises from disorders of the emotional sphere such as compensation and sublimation. Some individuals may tend to work excessively because of their inability to obtain results considered positive in other spheres of social life (compensation) or focus their energies on socially acceptable activities (sublimation) (Balconi & Angioletti, 2022; McMillan & O'Driscoll, 2008).

With reference to work addiction, the family of origin appears to be a very important system for the onset of addiction. From this perspective, addiction itself is explained as the result of specific dysfunctional family dynamics (for example, it can be caused by dynamics such as the inefficiency of family relationships, both between spouses, and in the various relationships between parents and children) (i.e., Robinson, 1998). It is also necessary to emphasize that in the literature there are few specific studies that relate work addiction with the aforementioned theories (e.g., social learning) but they can still be important as insights into the explanation of work addiction but need to be tested through more detailed empirical research (e.g., McMillan et al., 2001; McMillan & O'Driscoll, 2008).

Work addiction is likely the result of predisposing factors (e.g., internal motivations, cultural values, personality traits, genetic factors), socio-cultural experiences (e.g., social learning, culture emphasizing competence and competition), and behavioral reinforcers (e.g., organizational reward, job satisfaction, and financial gratification) and is therefore the result of biopsychosocial factors (Griffiths & Karanika-Murray, 2012; Ng et al., 2007). Consequently, work addiction is a multifactorial construct that must be analysed in multidisciplinary settings (Griffiths & Karanika-Murray, 2012; McMillan & O'Driscoll, 2008).

Addictive behaviors can have social, psychological, and health-related consequences (e.g., stress, low quality life, poor sleep quality, insomnia) because the behavior is taken into extremes (e.g., Griffiths, 2005; Kubota et al, 2010). Despite the existence of several scales for work addiction and workaholism (e.g., Dutch Workaholism Scale; Schaufeli et al., 2009), until recently, none of these were based on core addiction criteria within a biopsychosocial framework (Griffiths, 2005). In 2012, Andreassen et al. developed and validated a work addiction scale based on the theoretical approach of the six core symptoms of behavioral addictions (i.e., the Bergen Work Addiction Scale [BWAS]). All items address the core components of behavioral addiction. The authors found that work addiction is correlated with the individual's amount of work, leadership responsibilities, and health. The BWAS was recently translated and validated into Italian (Molino et al., 2022).

As far as the present authors are aware, there are no previous Italian studies that have examined the relationship between work addiction and personality traits, general distress [depression, anxiety, stress], and self-esteem. Given that work addiction is still a relatively under-researched topic in comparison to other behavioral addictions, the present study utilized a relatively new scale and explored variables that have not been carried out in an Italian context previously. The number of countries in which work addiction has been carried out is few and even less so in Italy.

1.1 Objectives and hypotheses of the study

Therefore, the aim of the present study was to examine: (i) the relationship of work addiction with personality traits among a sample of Italian adults (hypothesizing that there would be a negative association between work addiction and neuroticism, and a positive association with extraversion, openness, agreeableness, and conscientiousness based on previous research in other countries [e.g., Kun et al., 2020b]), (ii) the association between work addiction and psychological distress (hypothesizing there would be a positive association between work addiction and stress, anxiety, and depression), (iii) the relationship between work addiction and self-esteem (hypothesizing that there would be a negative relationship between work addiction and higher self-esteem based on previous literature [e.g., Alavi, 2011, 2012; Choi & Kim, 2021; Drønen, 2012]), (iv) the relationship between work addiction and amount of work (hypothesizing that work addiction would be positively associated with the number of hours worked weekly), and (v) whether the BWAS is a useful tool for predicting an individual's general distress (using linear regression to investigate how work addiction, assessed with the BWAS, can predict an individual's general distress [comprising three factors: anxiety, stress and depression] using the DASS-21 total score), and whether the Big Five personality traits (extraversion, agreeableness, openness, conscientiousness, and neuroticism [Goldberg, 1981; Gosling et al., 2003; Norman, 1963]) can predict the work addiction assessed with the BWAS (using linear regression) given that these traits have often been associated as predictors of behavioral addictions (i.e. Atroszko et al., 2017).

2. Methods

2.1 Participants

Between April and September 2021, a link to the online survey was advertised on several Italian online forums and social network platforms (e.g., *Facebook*). The inclusion criteria were the following: (i) being at least 18 years old; (ii) understanding the Italian language; (iii) providing

informed consent; and (iv) being employed (i.e., health workers in the oncology department, general medicine, psychologists, psychiatrists, lawyers, postmen, etc.). Participants who did not meet all the criteria were excluded from the study. In total, 442 individuals opened the survey link. Of these, 367 Italian workers completed the survey (83%). All participants provided their informed consent. Of those who completed the survey, 76% were female, 38% were married, and 46% had a university degree.

2.2 Measures

Socio-demographics, life habits and general questions related to work. The survey included questions concerning the socio-demographic aspects of the participants (e.g., sex, age, educational level, relationship, work), average number of work hours per week, and if they had one or more work activities (for example, a second job). Furthermore, information concerning their occupation (e.g., student job [i.e., typical jobs of university students, such as occasional jobs that take place in their spare time], full-time job, part-time job) and number of years of work experience were also asked for, largely replicating the job variables used in previous validations of the BWAS (e.g., Lichtenstein et al., 2019). The following questions were also asked to better understand personal work-related habits and to gain a more extensive background of the participants' working experiences:

- “*Did you ever continue to work despite being tired, fatigued, or sick?*” assessed on a scale from 1 (*never*) to 5 (*always*).
- “*How engaged are you in your work activities?*” assessed on a scale from 1 (*not at all*) to 5 (*completely*).
- “*Do you occupy a position of leadership responsibility or managerial functions?*” assessed using a ‘yes/no’ answer.
- “*Over the past 30 days, how often have you had any health problems?*” (e.g., high blood pressure, heart problems, high stress levels, gastrointestinal problems etc.)” assessed on a scale from 1 (*never*) to 5 (*always*).
- “*Do you have difficulty in separating your private life from your working life?*” assessed on a scale from 1 (*never*) to 5 (*always*).
- “*In which economic-working class do you work?*” assessed using multiple choice options (e.g., artisans, skilled workers, and farmers). These job categories were taken from the official website of the Italian government (Capezzuoli, 2011).
- “*How do you rate sleep quality in the past seven days?*” assessed on a scale from 1 (*very poor*) to 5 (*very good*).

Depression Anxiety Stress Scale-21 (DASS-21): The 21-item DASS-21 (DASS-21, Henry & Crawford, 2005); Italian version: Bottesi et al., 2015) was used to assess depression, anxiety, and stress (and psychological distress more generally). Participants indicate how much they agree with the items in reference to the previous week on a four-point scale from 0 (*not at all*) to 3 (*very much*) on the three constructs: depression (e.g., “*I felt like I had nothing to look forward to*”), anxiety (e.g., “*I felt close to a panic attack*”), and stress (e.g., “*I found it difficult to relax*”). Scores on each subscale range from 0 to 21. A higher score on each subscale indicates greater anxiety, stress and depression. Cronbach’s alpha in the present study was excellent ($\alpha=0.956$). This scale was used because anxiety, stress and depression are related to Work Addiction (e.g., Serrano-Fernández et al., 2021).

Ten Item Personality Inventory (TIPI): The 10-item TIPI (Gosling et al., 2003; Italian version: Chiorri et al., 2014) was used to assess the Big Five personality traits (i.e., openness, conscientiousness, extraversion, agreeableness, and neuroticism). Items (e.g., “*I see myself as extraverted*”) are assessed on a seven-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The scores range from 2 to 14 on each trait, and higher scores indicate a greater propensity for the given personality trait. Cronbach’s alpha in the present study was low ($\alpha=0.500$) but the original authors claimed that even a low α value still makes the scale usable (for details about low internal consistency, see Gosling et al., 2003). The present study used a version of the Big Five test because, although short, it is supported by a solid literature in delineating personality characteristics and traits. (i.e., Chiorri et al., 2014). Moreover, international research have frequently related the Big Five traits with behavioral addictions, (i.e., Atroszko et al., 2017).

Dutch Workaholism Scale (DUWAS): The 10-item version DUWAS-10 (Rantanen et al., 2015; Italian version: Nonnis et al., 2017) was used to assess workaholism and comprises two five-item scales: working excessively (WE) and working compulsively (WC). Items (e.g., “*I spend more time working than on socializing with friends, on hobbies, or on leisure activities*”) are rated on a four-point scale ranging from 1 (*almost never*) to 4 (*always*). It is possible to use the DUWAS-10 as a one-dimensional measure of workaholism (sum of all the items). Scores range from 10 to 40 and higher scores indicate greater workaholism. Cronbach’s alpha in the present study was very good ($\alpha=0.847$). The scale was included to test for convergent validity.

Rosenberg’s Self-Esteem Scale (RSES): The 10-item RSES (Rosenberg, 1965; Italian version: Prezza et al., 1997) was used to assess self-esteem. Items (e.g., “*On the whole, I am satisfied with myself*”) using a four-point scale from 0 (*strongly disagree*) to 3 (*strongly agree*). Scores range between 0 and 30 and higher scores indicate greater self-esteem. Cronbach’s alpha in the present

study was very good ($\alpha=0.890$). This scale has been used due to the numerous studies that have highlighted the relationship between self-esteem and behavioural addictions. (i.e., Alavi, 2011, 2012; Choi & Kim, 2021; Drønen, 2012).

Bergen Work Addiction Scale (BWAS): The seven-item BWAS (Andreassen et al., 2012; Italian version: Molino et al., 2022) was used to assess work addiction. Items (e.g., “*How often during the last year have you thought of how you could free up more time to work?*”) are rated on a five-point scale ranging from 1 (*never*) to (*always*). Scores range from 7 to 35, and a higher score indicates greater work addiction. Cronbach’s alpha in the present study was very good ($\alpha=0.828$).

Need for Recovery Scale (NFRS): The 10-item NFRS (Veldhoven et al., 2009; Italian version: Pace et al., 2013) was used to assess work-induced fatigue and the quality of worker’s recovery times. Items (e.g., “*I find it difficult to relax at the end of a working day*”) are rated on a four-point scale from 0 (*never*) to 3 (*always*). The scores range from 0 to 30, and higher scores indicate a greater need for recovery. Cronbach’s alpha in the present study was very good ($\alpha=0.865$). The present study used this test, because a higher level of general distress is generally correlated with a greater need for recovery (i.e., Molino et al., 2016).

2.3 Statistical analysis

The univariate normality of the data was examined using the guidelines proposed by Muthén and Kaplan (1985) which outline an asymmetry and a kurtosis from -1 to $+1$ and the Shapiro-Wilk’s normality test are not significant for $p<0.01$ (Mishra et al., 2019). Furthermore, the following statistical analyses were performed: (i) descriptive statistics of the test used (i.e., means); and (ii) the reliability of the scale, examined by internal consistency (i.e., Cronbach alpha; Cronbach, 1951). The Pearson product moment coefficient of correlation (r) was employed to establish the relationship between the BWAS and the other measures with the following effect sizes (in absolute value): from 0.1 to 0.3 small effect, from 0.3 to 0.5 medium effect and from 0.5 to 1.0 large effect size (e.g., Nunnally, 1978).

In addition, t -tests and ANOVAs were used to examine differences in means between groups, and simple and multiple regression analyses (using the standardized beta coefficient [β]) were used to verify the relationship between independent variables (e.g., personality [TIPI]; work addiction [BWAS]) and dependent variables (e.g., general psychological distress [DASS-21 total score] and depression, anxiety, and stress [DASS-21 subscale scores]; and self-esteem [RSES]). As regards the effect size, two indices were used: Cohen’s d for the t -test analysis (Cohen, 1988) and eta squared (η^2) for the ANOVA analysis with the following thresholds: very small effect

<0.01, small effect <0.20, medium effect <0.50 and large effect >0.80 (i.e., Cohen, 1988). The analyses were performed using FACTOR v.10.10.3 (Lorenzo-Seva & Ferrando, 20), SPSS Statistics v.20 (IBM Corporation, 2011), and JASP version 0.15 (JASP Team, 2017).

3. Results

3.1 Descriptive analysis of the sample

Of the 367 Italian workers, 68% were in full-time work (n=250) and the largest proportion of the participants (26%, n=95) worked in the ‘intellectual, scientific and highly specialized’ sector. The average number of working years was 16.11 years (SD±11.28), and the average number of hours worked weekly 35.70 hours (SD=± 11.31). Furthermore, 36% held a managerial and/or leadership position (n=131) and 77% had only one job (n=281). In relation to sleep quality, the average score was 3 (out of 5; SD±1). In relation to past-month health problems, the average score was 2.55 (out of 5; SD±1.25). As for perceived difficulty of separating work from private life, the average score was 3 (out of 5; SD±1.21), see Table 1 for details. The mean scores on the main psychometric tests were summarized in Table 2.

Table 1. Type of work engaged in by the participants (N=367)

	Frequency	Percentage
<i>Job sector</i>		
Other	97	26.431
Artisans, skilled workers, and farmers	9	2.452
Skilled professions in commercial activities and services	24	6.267
Armed Forces	9	2.452
Intellectual, scientific, and highly specialized professions	95	25.885
Technical professions	19	4.632
Lawmakers, entrepreneurs, and senior management	10	2.725
Unqualified professions	10	2.725
Executive professions in office work	61	16.348
Skilled professions in activities	33	8.719
<i>Job status</i>		
Part-time job	69	18.801
Full-time job	252	68.665
Student job	16	4.360
Other type of job	30	8.174

Table 2. Descriptive statistics of psychometric scale scores (N=367)

	BWAS	DWS	GDISTRESS	DEP	ANX	STR	NFRS	SES
Mean	19.422	24.837	40.866	11.635	10.850	18.381	12.946	21.850
SD	6.365	6.488	29.865	10.322	10.623	11.571	7.340	6.796
Minimum	7.000	10.000	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	35.000	40.000	126.000	21.000	21.000	21.000	30.000	30.000

Note: BWAS=Bergen Work Addiction Scale, DWS=Dutch Workaholism Scale, GDISTRESS=General distress DASS-21, DEP=Depression DASS-21, ANX=Anxiety DASS-21, STR=Stress DASS-21, SES=Self-Esteem Scale, NFRS=Need for Recovery Scale, SD= Standard deviation

3.2 Correlational analysis

Findings indicated that the BWAS score was positively and significantly correlated with the Dutch Workaholism Scale score ($r=0.769$; $p<0.001$), working hours ($r=0.127$; $p<0.05$), feeling involved in their work ($r=0.249$; $p<0.05$), difficulty in separating private from work life ($r=0.587$; $p<0.05$), frequency of health problems ($r=0.358$; $p<0.05$), total DASS-21 score ($r=0.448$; $p<0.001$), DASS-21 depression score ($r=0.401$; $p<0.001$), DASS-21 anxiety score ($r=0.396$; $p<0.001$), DASS-21 stress score ($r=0.437$; $p<0.001$), NFRS score ($r=0.544$; $p<0.001$), and was negatively and significantly correlated with age ($r=-0.150$; $p<0.05$), perceived sleep quality ($r=-0.114$; $p<0.05$), RSES score ($r=-0.352$; $p<0.001$), agreeableness ($r=-0.227$; $p<0.001$), conscientiousness ($r=-0.278$; $p<0.001$), neuroticism ($r=-0.294$; $p<0.001$), and openness to experience ($r=-0.109$; $p<0.05$). The BWAS correlated positively but not significantly with extraversion ($r=0.004$; $p>0.05$). Tables 4 and 5 outline the correlations between the BWAS and the other scales.

Table 3. Descriptive statistics of the personality factors on the Ten-Item Personality Inventory

	EX	AG	CO	NE	OP
Mean	4.253	5.431	5.792	4.507	4.801
Std. Deviation	1.506	1.111	1.067	1.480	1.122
Minimum	2.000	2.000	2.000	2.000	2.000
Maximum	14.000	14.000	14.000	14.000	14.000

Note: EX=Extraversion, AG=Agreeableness, CO=Conscientiousness, NE=Neuroticism, OP=Openness

Table 4. Pearson's correlations among the key study variables

	BWAS	DWS	GDISTRESS	DEPRX	ANX	STX	NDR	SELF
BWAS	—							
DWS	0.769 ***	—						
GDISTRESS	0.448 ***	0.475 ***	—					
DEP	0.401 ***	0.416 ***	0.913 ***	—				
ANX	0.396 ***	0.425 ***	0.909 ***	0.738 ***	—			
STR	0.437 ***	0.466 ***	0.932 ***	0.786 ***	0.768 ***	—		
NFRS	0.544 ***	0.542 ***	0.678 ***	0.611 ***	0.586 ***	0.667 ***	—	
SES	-0.352 ***	-0.330 ***	-0.492 ***	-0.612 ***	-0.355 ***	-0.398 ***	-0.402 ***	—

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. BWAS=Bergen Work Addiction Scale, DWS=Dutch Workaholism Scale, GSTRES =General Distress DASS-21, DEPR=Depression DASS-21, ANX=Anxiety DASS-21, STR=Stress DASS-21, SES=Self-Esteem Scale, NFRS=Need for Recovery Scale

Table 5. Pearson's correlations between BWAS and personal traits

	BWAS	EX	AG	CO	EM	OE
BWAS	—					
EX	0.004	—				
AG	-0.227 ***	-0.197 ***	—			
CO	-0.278 ***	0.041	0.339 ***	—		
EM	-0.294 ***	0.066	0.229 ***	0.244 ***	—	
OP	-0.109 *	0.221 ***	0.066	0.074	-0.056	—

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. EX=Extraversion, AG=Agreeableness, CO=Conscientiousness, NE=Neuroticism, OP=Openness, BWAS=Bergen Work Addiction Scale

3.3 ANOVA and t-test analyses

Findings indicated that there were no significant gender differences in BWAS scores ($t=0.043$, $df=365$, $p > 0.05$, Cohen's $d=0.005$; very small effect size). There was a significant difference between having one job or having two (or more) jobs ($t=3.169$, $df=365$, $p < 0.01$, Cohen's $d=0.390$; low/medium effect size). There was a significant difference in BWAS scores between those who had a leadership/managerial position or not ($t=2.617$, $df=365$, $p < 0.001$, Cohen's

$d=0.285$; medium/low effect size) (Table 6). There was no significant difference in mean BWAS scores (using one-way ANOVA) in relation to the type of work (full-time, part-time, student job, other) ($F=0.596$, $p>0.05$, $df=3$, $\eta^2=0.005$) or the sector individuals worked in (i.e., artisans, skilled workers, etc.) ($F=0.618$, $p>0.05$, $df=3$, $\eta^2=0.007$).

Table 6. Differences in BWAS scores relating to leadership position, gender, and work activity

	t	df	p	Cohen's d^*
Leadership position (yes/no)	2.617	365	0.009**	0.285
Gender (male/female)	0.043	365	0.965	0.005
Work Activity (one or more)	3.169	365	0.002**	0.390

Note. t-test: * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

3.4 Linear and multiple regression analyses

Linear regressions were used to see whether work addiction (BWAS score) predicted an individual's general psychological distress (DASS-21 total score) and depression, anxiety, and stress (DASS-21 subscale scores). The models were significant with work addiction explaining (i) 20.1% of the variance in general psychological distress (DASS-21 total score): $F=91.882$, $df=1$, $p<0.001$, $R^2=0.201$, with regression beta standardized coefficient $\beta=0.448$, $t=9.586$, $p<0.001$; (ii) 15.7% of the variance in anxiety: $F=67.824$, $df=1$, $p<0.001$, $R^2=0.157$, with regression beta standardized coefficient $\beta=0.396$, $t=8.586$, $p<0.001$; (iii) 19.1% of the variance in stress: $F=85.930$, $df=1$, $p<0.001$, $R^2=0.191$, with regression beta standardized coefficient $\beta=0.437$, $t=9.276$, $p<0.001$; and (iv) 16.1% of the variance in depression: $F=69.839$, $df=1$, $p<0.001$, $R^2=0.161$, with regression beta standardized coefficient $\beta=0.408$, $t=8.386$, $p<0.001$.

A multiple regression model was tested using the personality factors (TIPI subscale scores) to see whether personality was a predictor of work addiction (BWAS). The model was significant with personality factors explaining 15.4% of the variance in work addiction ($F=13.137$, $df=5$, $p<0.001$, $R^2=0.154$) with the following significant beta standardized coefficients: (i) conscientiousness ($\beta=-0.180$, $p<0.001$), (ii) neuroticism ($\beta=-0.236$, $p<0.001$), and (iii) openness to experience ($\beta=-0.110$, $p<0.05$). Extraversion and agreeableness had a non-significant regression Beta (β) standardized coefficient ($p>0.05$) (Table 7). Finally, a linear regression was used to see whether work addiction (BWAS score) predicted self-esteem (Rosenberg Self-Esteem Scale score). The model was significant with work addiction explaining 12.4% of the variance in self-esteem: $F=51.766$, $df=1$, $p<0.001$, $R^2=0.124$ with beta standardized coefficient $\beta=-0.352$, $t=7.195$, $p<0.001$.

Table 7. Coefficients for multiple regression models for personality variables (TIPI subscale scores) and work addiction (BWAS score)

Model		Unstandardized	Standard Error	Standardized	<i>t</i>	<i>p</i>
H ₀	(Intercept)	19.422	0.332		58.458	<0.001
H ₁	(Intercept)	35.687	2.455		14.533	<0.001
	EX	0.136	0.218	0.032	0.625	0.532
	AG	-0.562	0.310	-0.098	-1.816	0.070
	CO	-1.074	0.314	-0.180	-3.417	<0.001** *
	NE	-1.017	0.220	-0.236	-4.623	<0.001** *
	OP	-0.622	0.285	-0.110	-2.182	0.030*

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. EX=Extraversion, AG=Agreeableness, CO=Conscientiousness, NE=Neuroticism, OP=Openness, BWAS=Bergen Work Addiction Scale.

4. Discussion

An increasing amount of research (e.g., Griffiths et al., 2018; Kun et al., 2020b) has investigated the consequences of work addiction using various instruments, including the Bergen Work Addiction Scale (BWAS). This rising interest among the scientific community may be explained by the increasing prevalence of work addiction in several countries (Griffiths et al., 2018; Kun et al., 2020b) and its negative physical and psychological correlates (Kun et al., 2020a, 2020b). The aim of the present study was to use the Italian BWAS (Molino et al., 2022) to investigate the main psychological consequences associated with work addiction in the Italian territory. The original Italian BWAS validation study reported solid and robust psychometric qualities (Molino et al., 2022). However, it did not exhaustively investigate the relationship between work addiction and important related factors (e.g., personality, stress, anxiety, depression, self-esteem) that might expand the understanding of work addiction in the Italian territory.

The results of the present study confirmed the initial hypotheses and strengthened the nomological framework in the Italian context. The BWAS, which assessed work addiction in the present study, was positively and significantly correlated with general psychological distress, stress, anxiety, and depression, as well as with the number of weekly hours worked (Hypothesis ii and iv). These results concur with many studies in international literature (e.g., Serrano-

Fernández et al., 2021). In fact, severe work addiction is associated with greater general psychological distress, greater anxiety, and greater depression, which are characteristics contained in other behavioral addictions (i.e., Serrano-Fernández et al., 2021). As reported by Serrano-Fernández et al. (2021), work addiction has been associated with depressive tendencies as well as other clinical symptoms, such as anxiety and depression. In fact, work addiction (using the BWAS score) explained 20.1% (Hypothesis v) of an individual's general psychological distress (comprising anxiety, stress, and depression), and which was highly significant). Furthermore, all three DASS-21 constructs (anxiety, stress, and depression) were predictive of work addiction, confirming the findings of previous research (e.g., Serrano-Fernández et al., 2021).

In addition, there was a significantly positive association between work addiction (BWAS scores) and need for recovery (NFRS scores), which, as reported by Serrano-Fernández et al. (2021), is most likely due to a sense of low energy and lack of happiness as a whole. This appears to be confirmed by other Italian research by Molino et al. (2016), in which work addiction was related to higher levels of exhaustion and to a personal need to recover. Moreover, the same study found that higher levels of work addiction were associated with mental and physical fatigue.

The present study also found that individuals with a higher BWAS scores had more health problems, worked longer weekly hours, had poorer perceived sleep quality, and significant difficulty in separating private and work life. When taken together, these difficulties negatively affect the quality of life, as an important health parameter affected by an individual's biopsychosocial individual differences, cultural beliefs, and its relationship to the environment as promulgated by the World Health Organization (2019). Another factor (negatively) related to work addiction is self-esteem (i.e., low self-esteem was associated with more severe work addiction). The present study found that low self-esteem was significantly associated with work addiction. These results confirm the Hypothesis iii and are in line with what has already been found in research from other countries (e.g., Kun et al., 2020a, 2020b).

Regarding personality traits, the results partially confirm the hypotheses (i.e., a negative and significant association between work addiction and neuroticism) which is in general agreement with the existing literature (e.g., Griffiths et al., 2018). However, the study found a significant negative association with conscientiousness and no significant association with extroversion. This result, although contrary to the initial hypothesis, is in fact partially corroborated by other

international studies that have found a negative relationship between conscientiousness and work addiction (e.g., Kun et al., 2020b).

With regard to extraversion, which has generally been found to be a significantly and positively associated trait with work addiction, the present study found a positive, but non-significant relationship. This may be due to various factors, such as the intrinsic characteristics of the sample. Future studies should investigate, with a larger and more representative samples. The study also investigated the relationship between agreeableness and openness and work addiction (to get a complete overview of all personality traits related to the Big Five). The results showed (in both cases) a significant negative relationship. This indicates that among Italian workers, those with high levels of openness (i.e., being highly empathetic and altruistic) and agreeableness (i.e., being highly persevering, reliable and self-disciplined) there was a lower likelihood of work addiction. These results do not concur with other findings (e.g. Kun et al., 2020b) and may be of interest for future research to see whether the differences are cultural, methodological, or occupational.

In summary, in the present Italian worker sample, an individual with a higher work addiction score on the BWAS tends to have the following personality characteristics (in relation to the Big Five traits): low openness (i.e., does not like new things, does not like change), high neuroticism (i.e., feels anxious, stressed, or has dramatic mood changes), low conscientiousness (i.e., is aimless, informal, lazy, inattentive, and undisciplined) and low agreeableness (i.e., is cynical, rude, suspicious, competitive, vindictive, ruthless, irritable or manipulative). While personality traits play important roles in work addiction (and addictions more generally), they are not the only factors that have contributory roles. In fact, describing work addiction in personality terms alone does not capture the complexity of the phenomenon that, increasingly, is considered as multifactorial and biopsychosocial in terms of etiology (Griffiths et al., 2018).

Some personality traits (e.g., neuroticism) have been found to be consistently associated with addictions in general (e.g., Shimoni et al., 2018). In the present study, personality factors significantly predicted work addiction and explained 15.4% of the total variance of the work addiction scores on the BWAS (Hypothesis v). This finding suggests that personality plays a significant role in work addiction, in spite of the fact that many other factors are involved. Moreover, in the present study, not all personality factors were significant (for example, no significant associations were found with extraversion). In fact, as reported by Kun et al. (2020b), the distribution of personality traits is varied, so the presence of work addiction can be better described in terms of personal, situational, and structural factors.

Higher levels of extraversion, neuroticism, and conscientiousness have been considered as risk factors for work addiction. Although these correlations have been reported in several studies, Kun et al.'s (2020b) meta-analysis found that only conscientiousness, openness, and extraversion showed positive (albeit weak) relationships with work addiction (Kun et al., 2020b). Moreover, some structural components of the work environment appear to play a role in the development of work addiction, such as the numbers of hours per shift, economic and social rewards, and the cultural milieu in which the work itself takes place (Griffiths & Karanika-Murray, 2012).

Individual risk factors of work addiction, such as personality traits, are important variables when considering the influences of work addiction. Nevertheless, they explain a relatively small proportion of the variance regarding work addiction (Kun et al., 2020b). Moreover, low self-esteem, general psychological distress, anxiety, stress, depression, excessive work hours, difficulty separating personal and work life, low sleep quality, and frequent health problems have been repeatedly found to be important constructs related to work addiction, as well as in other types of addiction (Kun et al., 2020b). The findings also indicated no significant difference between males and females in relation to work addiction. This suggests that behavioral addictions, including work addiction, can be equally present among males and females, and is in line with the findings of other studies (e.g., Aziz et al. 2008; Lichtenstein et al., 2019). This may be due to several factors, including (i) intrinsic characteristics of the sample and (ii) a lower number of males who participated in the present study.

The findings also indicated that work addiction was more likely to be observed among those who held leadership and managerial positions and among those who had more than one job. This result is not surprising given that work addicted individuals generally have an ever-increasing need to work. As reported in several studies (e.g., Andreassen et al., 2014), this tendency can lead to individuals seeking out more than one work activity. Moreover, the significant difference among those holding a leadership position and employed workers is also unsurprising, since this result is in line with previous research (e.g., Andreassen et al., 2012; Lichtenstein et al., 2019). Work addiction can lead, albeit with all the negative health consequences previously described, to promotions in the workplace, given the general high productivity of the individual. Furthermore, the average scores showed no significant differences between the total BWAS score, and type of work (full-time, part-time, student job, other) or work sectors (i.e., artisans, skilled workers, etc.). This suggests that work addiction can affect any worker, irrespective of the industry or working area and type of employment.

Finally, in the present study, a positive and significant correlation was found between the BWAS (which assesses work addiction) and the DUWAS (which assesses workaholism). This finding strengthens the robustness of the BWAS test in terms of convergent validity. Although work addiction and workaholism are different constructs, they have many characteristics in common (Atroszko, 2019; Frisone et al., 2021; Griffiths et al., 2018). It should also be noted that there are (to the best of the authors' knowledge) no other scales assessing work addiction/workaholism that have been validated into Italian so the present study had little option to use the DUWAS for convergent validity testing. Moreover, although it has been argued that work addiction and workaholism are different constructs, they are similar enough for the purposes of convergent validity testing (given that convergent validity refers to how closely a new scale is related to other variables and other measures of the same construct or similar (see Campell & Fiske, 1959).

5. Limitations

The present study is not without limitations. The study was conducted on a small sample of healthy participants, rather than on a large clinical sample. More specifically, the cross-sectional research design, in addition to the convenience sample and self-reported data are likely to have biased the results (e.g., content sensitive response bias such as social desirability). Although the survey was anonymous, participants may have been ashamed to report their problematic work behaviors. Regarding the non-random and voluntary sample, it cannot be considered representative of the entire population and therefore the generalizability of the findings is limited. Most noticeably, the sample included a higher proportion of females which may have affected the findings regarding gender differences.

Another limitation is the instrument used to assess personality traits did not have high internal consistency scores. This has been noted by the scale developers themselves (i.e., Gosling et al., 2003), mainly due to the fact that each subscale has only two items per personality trait, meaning that the test is less reliable than other standardized Big Five measures. More specifically, brief measures do not record the narrower facet-level construct, as can be provided, for example, by 240-item NEO Personality Inventory (Costa et al., 1992). Additionally, the use of single questions, such as the one relating to perceived quality of sleep which, in future research, should be investigated more thoroughly. Further investigation on a larger Italian sample among more diverse working sectors is needed to confirm the preliminary findings provided by the present study using.

A further limitation is the instrument used to assess work-related stress. As has been explicitly stated by several authors (e.g., Frisone et al., 2021), assessing occupational stress with a single instrument could lead to an underestimation of stress itself and/or fail to capture all its nuances. Future research should use more comprehensive measures to assess this construct to provide greater ecological validity. At present, there is no consensus among researchers concerning how to assess work-related stress because there are a number of different instruments and approaches (e.g., Frisone et al., 2021).

6. Conclusion

Despite these limitations, the results are of existential value and will help Italian researchers to undertake more in-depth studies concerning the topic of work addiction, in particular, the relationship between work addiction and the main constructs related to it, such as anxiety, stress, depression, self-esteem, and personality. Moreover, the findings of the present study broaden the understanding of the work addiction in the Italian context, adding new and relevant information for the understanding of the phenomenon itself, using a specific tool to assess work addiction (i.e., the recently validated Italian BWAS). Furthermore, the study found interesting and meaningful relationships between the factors of personality and work addiction, consequently providing a basis for future studies. Given that the results are not entirely in line with international research carried out in other countries, future studies should consider other factors that might be associated with work addiction, such as environmental and social factors. The findings presented here can be applied in clinical and non-clinical practice settings.

Ethical approval: The research was conducted according to the Declaration of Helsinki for medical research involving human participants and was approved by Associazione Italiana Psicoterapia Cognitivo-Comportamentale di Gruppo in Rome, Italy. All participants gave their online consent to participate in the study. The identity of the participants is anonymous, and the data were stored in an encrypted online archive, accessible only to the authors of the present study.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Research data are available on request to corresponding author.

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