

Article

Self-Care Practices as a Mediator between Workaholism and Sleep–Wake Problems during COVID-19

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Abstract: Self-care practices are considered an important resource for workers’ psychophysical well-being. These resources were especially relevant during the COVID-19 outbreak, during which both workaholism and sleep–wake problems were documented. Our study aimed to examine whether workaholism could predict sleep–wake quality through the mediating effects of self-care practices. A convenient sample of 405 Italian workers (71.1% females; mean age = 42.58 ± 10.68 years) completed the Self-Care Practices Scale, Mini-Sleep Questionnaire, and Working Excessively and Working Compulsively Scale during the first lockdown in Italy in 2020. The main results showed that workaholism directly affected sleep–wake quality, suggesting that high levels of workaholism increased the likelihood of sleep–wake problems being reported. At the same time, people with high levels of workaholism reported scarce use of self-care practices and, in turn, lower sleep–wake quality. Our findings confirm the importance of monitoring the quality of life at work to protect workers’ sleep–wake cycle quality and investing in self-care. Both individual and organizational efforts can help break the vicious cycle of workaholism and sleep–wake disorders.

Keywords: workaholism; sleep–wake cycle; self-care practices; COVID-19 outbreak; mediating analysis



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1. Introduction

The workaholism phenomenon has received increasing attention in recent years. This construct is characterized by a dysfunctional work investment with recurrent behaviours (e.g., working long hours) and cognitive bias (e.g., mentally focusing on work activities outside of work) [1,2]. Workaholism indicates the desire or the uncontrollable urge to work continuously [3]. Workaholics spend a considerable amount of time on work-related tasks and devote more time to work (and related tasks) than is necessary and/or appropriate [4,5]. Thus, workaholics do not move away from the task. They constantly think about work and worry about their job even if they are not working, ultimately overworking [6]. Consistent with these workaholic tendencies, Schaufeli et al. [7] suggested two elements when defining workaholics: compulsive working, representing the cognitive dimension of workaholism, and excessive working, reflecting the behavioural aspects of workaholism [8]. Although the definitions of workaholism may vary among different theoretical backgrounds, it is possible to find a consensus among some characteristics [9]. The first concerns the type of motivation involved. Motivation is indeed internal and not external. It is a kind of “internal (negative) pressure” that drives a person to work obsessively. Another characteristic feature is preoccupation with work, or the inability to detach oneself from work-related thoughts.

Finally, long hours and the great amount of energy invested in work are other common elements of workaholism [9].

Reports show that workaholism can negatively impact both individual well-being and organizational vitality [10,11]. Workaholics have reported family tensions, poor social relationships, depression, burnout, and sleep disorders [12–15]. The negative outcome and bidirectional relationship between workaholism and sleep disorders have been widely studied. Thus, the positive association between workaholism and insomnia [16,17], one of the most common sleep disorders worldwide, is unsurprising [18]. At the same time, the association between workaholism and sleep disorders is characterized by poor sleep quality, defined as difficulty falling asleep, waking up during the night, inadequate sleep efficiency, tiredness upon waking, and daytime sleepiness [19–21]. In light of the present study, Spagnoli et al. [22–24] noted that the mediation role of several variables, such as negative job-related effects, intensive smartphone use, work/family conflicts, and emotional exhaustion, leads to indirect associations between workaholism and sleep disorders. For example, workaholics tend to use their smartphones intensively, leading to poor sleep quality. These findings are relevant because they highlight the process through which workaholics develop sleep disorders and suggest the protective role of several variables in disrupting (or reducing) the strength of the relationship between workaholism and sleep disorders. In addition to the findings reported by Spagnoli et al. [24] (and similar studies), sleep problems are strongly associated with reduced well-being (i.e., poor health) and poor job performance in work contexts, an increased risk of occupational accidents, absenteeism, high turnover rates, and lower levels of job satisfaction and work productivity [25].

The global COVID-19 pandemic led to a shutdown of all activities, especially those related to academia, work, leisure, and recreation [26]. During March and April 2020, almost all countries faced emergency risks due to the contagion, and international governments implemented a total lockdown as the main countermeasure to the spread of COVID-19. This lockdown entailed home confinement, social distancing, and the closure of most businesses. These measures led to more sedentary behaviour and less physical activity with enforced changes in personal schedules. They affected psychological and mental health (e.g., anxiety, depression, and stress) as well as sleep quality and quantity [26–31]. In addition, the lockdown profoundly altered the relationship between work and the type of services available since in-person work was limited to essential workers (especially healthcare services). During the COVID-19 crisis, the governments of several countries implemented a shelter-at-home mandate, leading to a preference for remote work and working from home. Although this mandate was implemented to attenuate the spread of COVID-19, working from home was negatively associated with different emotional outcomes among workers [32,33]. While most people continued to be employed full-time during this period, their daily work and personal lives significantly changed since they spent more time sedentary and less active. In addition, there was an increase in remote work and changes in the social and physical work environment, with less face-to-face contact [34]. Studies report that the type and duration of work conducted affect well-being. For example, Lee et al. [35] showed that a higher time commitment (i.e., longer working hours) when working remotely contributes to psychological stress. In this context, Allam et al. [36] found that the number of workaholics among university employees increased both during and after the COVID-19 crisis. Interestingly, this increase was also associated with an increase in sleep problems, and workaholism largely predicted these sleep problems [36]. However, as far as we know, there are only a few studies that have examined the relationship between workaholism and sleep quality during the COVID-19 outbreak, also focusing on wake quality; the study by Spagnoli et al. [24] is one of these few.

In recent years, researchers have studied the well-being of workers to determine their health practices and identify possible intervention techniques involving self-care practices. Although there is no clear and unambiguous definition in the literature, self-care practices can be considered behaviours that promote health and well-being, such as making time for personal plans, maintaining a proper sleep schedule, receiving a massage, and practicing

yoga. Indeed, self-care has been shown to offset work-related stress [37] and promote resilience in mental health [38] and health professionals [39]. The role of self-care practices as an approach that can be taught and learned in continuing education for professionals was explained, for example, by Myers et al. [40], who found a relationship between perceived stress and sleep hygiene, social support, emotion regulation, and acceptance within a mindfulness framework in a sample of psychology students [41]. At the same time, it has been suggested that workers should perform some self-care techniques during the uncertain period of the COVID-19 pandemic [42]. In addition, self-care has been shown to increase resilience and reduce frustration and secondary trauma in healthcare workers, thereby reducing the risk of stress becoming a chronic disorder [42,43]. Lee and Miller [44] distinguished between personal and professional self-care and emphasised the reciprocal relationship between these two types of self-care. Specifically, personal self-care is defined as “a process of purposeful engagement in practices that promote holistic health and well-being of the self” ([44], p. 99), while professional self-care is described as “the process of purposeful engagement in practices that promote effective and appropriate use of the self in the professional role within the context of sustaining holistic health and well-being” ([44], p. 99). Based on these two definitions, in 2019, Lee et al. [45] developed the Self-Care Practices Scale (SCPS), an instrument to measure how often people engage in both types of self-care practices.

This study examines the possible relationship between workaholism, self-care practices, and sleep–wake quality during the COVID-19 outbreak based on several findings. For example, in their evaluation of the effectiveness of intentional self-care practices in relation to the work environment during the COVID-19 pandemic, Monroe et al. [46] conclude that a mindfulness-based conceptual framework can be used to reduce burnout among nurses. The results showed a significant difference between an in-patient unit with and without the implementation of self-care programs. Notably, nurses in an in-patient unit with a self-care program reported higher levels of job satisfaction compared to those who worked in units where the program was not implemented. This finding highlights the importance of self-care practices in improving job satisfaction and teamwork, as well as reducing burnout. In other words, self-care practices can help create healthier work environments. Similarly, Fiske et al. [47] asked German patients with COVID-19 whether they used (or did not use) self-care practices, especially to cope with quarantine. The survey found that more self-care practices were used during the pandemic, and many participants reported incorporating and introducing new activities, such as yoga, meditation, and exercise, or more attention to and emphasis on healthy eating habits. Although the study did not directly assess mindfulness as a self-care practice, Mirolli et al. [29] clearly reported that during the first lockdown in Italy, the acceptance components of mindfulness reduced anxiety levels and that low anxiety levels in turn conditioned better sleep–wake quality see also [30]. From a broader perspective, these two studies suggest that self-care practices are related to the quality of sleep and daily functioning. Indeed, a strong association was found between beliefs about best sleep hygiene practices and sleep quality [48].

Considering that workaholics (for whom workaholism is recognized as an addiction) report higher levels of perceived general and occupational stress, and that higher levels of stress, in turn, increase the occurrence of work-family conflict [49], along with the finding that workaholics with higher levels of work-family conflict reported poorer sleep quality [22–24], it may be useful to explore the mediating role of self-care practices in the relationship between workaholism and sleep–wake quality in workers, particularly during a critical period such as the first COVID-19 outbreak in Italy. Indeed, workaholics may have been less likely to engage in self-care practices during the COVID-19 crisis and, in turn, had poorer sleep–wake quality. This expectation is based on the fact that self-care practices are positively related to sleep–wake quality [29,30,48]. Furthermore, workaholism could be considered a stressor that may have negative effects on workers’ well-being and health. Self-care practices, on the other hand, could be considered to help workers manage time and stress and reduce fatigue, which would have a positive impact on mental

health [50]. Since there is no consensus in the literature on the definition of the concept of self-care, we decided to refer to the framework proposed by Lee and Miller [44] using the SCPS [45]. In this way, our data would provide information on the benefits of self-care practices for students and workers from different professional groups during and after the implementation of the lockdown procedure, according to our expectations regarding possible outcomes.

According to this framework, we hypothesize that the following:

Hypothesis 1 (H1). *Self-care practices play a mediating role in the association between working excessively and wake problems.*

Hypothesis 2 (H2). *Self-care practices play a mediating role in the association between working compulsively and wake problems.*

Hypothesis 3 (H3). *Self-care practices play a mediating role in the association between working excessively and sleep problems.*

Hypothesis 4 (H4). *Self-care practices play a mediating role in the association between working compulsively and sleep problems.*

2. Materials and Methods

2.1. Participants

This study is part of a larger research project on the well-being of Italian workers during the COVID-19 outbreak, approved by the Bioethics Committee of Turin University (protocol code no. 181450). An ad hoc online questionnaire was completed between April and May 2020, a period when the Italian authorities placed the entire country in a state of national lockdown. A non-probability purposive sample was employed using the snowball sampling technique. The link to the questionnaire was sent to acquaintances with certain characteristics (adult Italian workers), who forwarded the link to their acquaintances with the same characteristics. The questionnaire was accompanied by an explanation form with the objectives of the research; participants had to provide their informed consent to complete the questionnaire (in accordance with EU Regulation 2016/679). The participants did not receive any compensation for completing the questionnaire.

Four hundred and five volunteers participated in the online survey. The sample consisted of 405 workers: 71.1% of them were women (mean age 42.58 ± 10.68 years, age range 21–67) and 28.9% were men ($M = 45.39$ years, $SD = 10.51$ years), who were older than the women ($M = 41.44$ years, $SD = 10.55$ years), with $t(401) = -3.32$, $p < 0.005$. All participants reported that they were employed in different sectors at the time of the survey (see Table 1), mainly in education, research, and healthcare (35.8%), with about 75.3% having a full-time contract. The majority of the participants lived in the north of Italy (85.7%), while the remaining participants lived either in the south (8.1%) or in the centre (4.7%) of Italy. The sampling procedure was similar to that of a convenience sample, as only voluntary participants were included. Almost the entire sample (96.0%) lived with other family members in Italy at the time of the survey during the lockdown, about 58.8% were married, and 34.3% were single. More than half of the participants had no children (54.6%), and about 80% of the participants shared a house with non-family members. Finally, about 70% of the participants were equally divided between those with a high school diploma and those with a master's degree.

Table 1. Descriptive statistics of the sample (N = 405).

	N	%
Age (M = 42.58; DS = 10.68)		
Gender		
Female	288	71.1
Male	117	28.9
Relationship Status		
Single	139	34.3
Married/cohabiting	238	58.8
Separated/divorced	24	5.9
Widow/widower	4	1.0
Education		
Lower secondary school diploma	14	3.5
Vocational school diploma	13	3.2
High school diploma	126	31.1
Bachelor's degree	29	7.2
Master's degree	147	36.3
Post-graduate training	76	18.8
Professional Sectors		
Agriculture and Handicraft	9	2.2
Business consulting	32	7.9
Culture, Sport, and Tourism	29	7.2
Education and Research	78	19.3
Healthcare services	67	16.5
Industry	26	6.4
Mass media and Telecommunications	16	4.0
Public services and Administration	36	8.9
Social services	18	4.4
Trade/Commerce	35	8.6
Other	55	13.6
Missing	4	1.0
Professional Categories		
Blue collar	15	3.7
Educator and Social Worker	10	2.5
Healthcare professional	42	10.4
Manager, Director	11	2.7
Scholar, Researcher, and Teacher	78	19.3
Self-employed professional	56	13.8
White collar	168	41.5
Other	21	5.2
Missing	4	1.0

2.2. Measures

Mini-Sleep Questionnaire (MSQ). The MSQ was validated for the Italian context by Natale et al. [51]. The questionnaire asked participants to indicate the frequency of occurrence of ten behaviours in the last two weeks during the night (e.g., difficulty falling asleep) or during the day (e.g., falling asleep during the day) on a 7-point Likert scale (1 = never and 7 = always). The total score is the sum of all items and can be considered an estimate of sleep–wake quality. In this case, higher scores reflected a higher frequency of sleep–wake problems. According to Natale et al. [51], the MSQ contains two independent factors: sleep (consisting of 5 items) and wake (consisting of 4 items). Item number 6, which refers to snoring, did not load on any factor. Consistent with the total score, a higher score on the

sleep factor reflects poor sleep quality (i.e., sleep problems), just as a higher score on the wake factor reflects poor wake quality (i.e., daytime sleepiness). Natale et al. [51] also provided cut-off values for each factor: a factor score > 16 indicates individuals with sleep problems/disorders and a score > 14 for the wake factor indicates individuals with wake problems/excessive daytime sleepiness. In this survey, the internal consistency of the sleep factor was 0.83, and Cronbach's alpha of the wake factor was 0.83.

Personal Self-Care Practices. The Personal Self-Care Practices Scale (SCPS) was developed by Lee et al. [45]; it comprises 9 items asking respondents to indicate the frequency of certain behaviours in the past week on a five-point Likert scale (from 0 = never to 4 = very often) [45]. The total score is the sum of all items in this questionnaire, and higher scores indicate the level of engagement in self-care practices. In other words, a higher SCPS total score reflects a higher level of self-care practice. The Cronbach's alpha of the SCPS in this study was 0.73.

Working Excessively and Working Compulsively (WEWC). Following Schaufeli et al. [52], we used 5 items related to working excessively (WE; behavioural component of workaholism) and 5 items on working compulsively (WC; cognitive component of workaholism). Regardless of the scale, participants had to indicate the frequency of each item for all work scenarios presented on a four-point Likert scale, from 1 (never) to 4 (always). The total score of WE was calculated from the sum of all five associated items, with higher scores reflecting an excess of work. Similarly, the total score of WC was calculated from the sum of all five associated items, and higher scores reflected a type of work addiction. In the present study, the internal consistency of WE was 0.82, whereas the reliability of WC was 0.72.

2.3. Procedures

In Italy, the first lockdown began on 10 March and lasted until 3 May 2020, when the Italian government imposed home confinement and social distancing on the entire population. During this period of home restriction in response to the COVID-19 pandemic, participants received a link to fill out an online survey via the Google Forms platform. After providing their consent to participate (by clicking a button), all individuals answered a socio-demographic section (e.g., gender, age, education, etc.), followed by the MSQ, SCPS, WE, and WC. Data collection started on 19 April 2020 and ended on 7 May 2020.

2.4. Data Analysis

For the statistical analysis, we used version 27 of the IBM software SPSS. First, we decided to categorize participants based on the cut-off values reported in [51]. Thus, we identified participants with and without sleep problems, and participants with and without wake problems. In this way, we assessed gender differences between those with and without sleep-wake problems using a chi-squared (χ^2) test and age differences between these groups using between-subjects *t*-tests. We then examined the group differences (i.e., individuals with and without sleep-wake problems) for SCPS, WE, and WC using between-subjects *t*-tests. We adopted a continuous approach and performed Pearson's correlations between the variables. Finally, to better investigate the relationship between MSQ, SPCS, and WE-WC, we used the macro PROCESS [53] to perform a mediation analysis, obtaining unstandardised indirect effects from 5000 bootstrap samples; 95% bias-corrected confidence intervals (CI) excluding zero indicate significant indirect (i.e., mediation) effects. For the present study, we used Hayes's conceptual model number 4 templates. Specifically, we conducted four mediation analyses, testing the following models (see Figure 1): SCPS mediates the effects of WE or WC on sleep or wake factors. In other words, we estimated the direct effects of WE or WC on sleep-wake problems as well as the indirect effect of the SCPS mediator, controlling for gender and age.

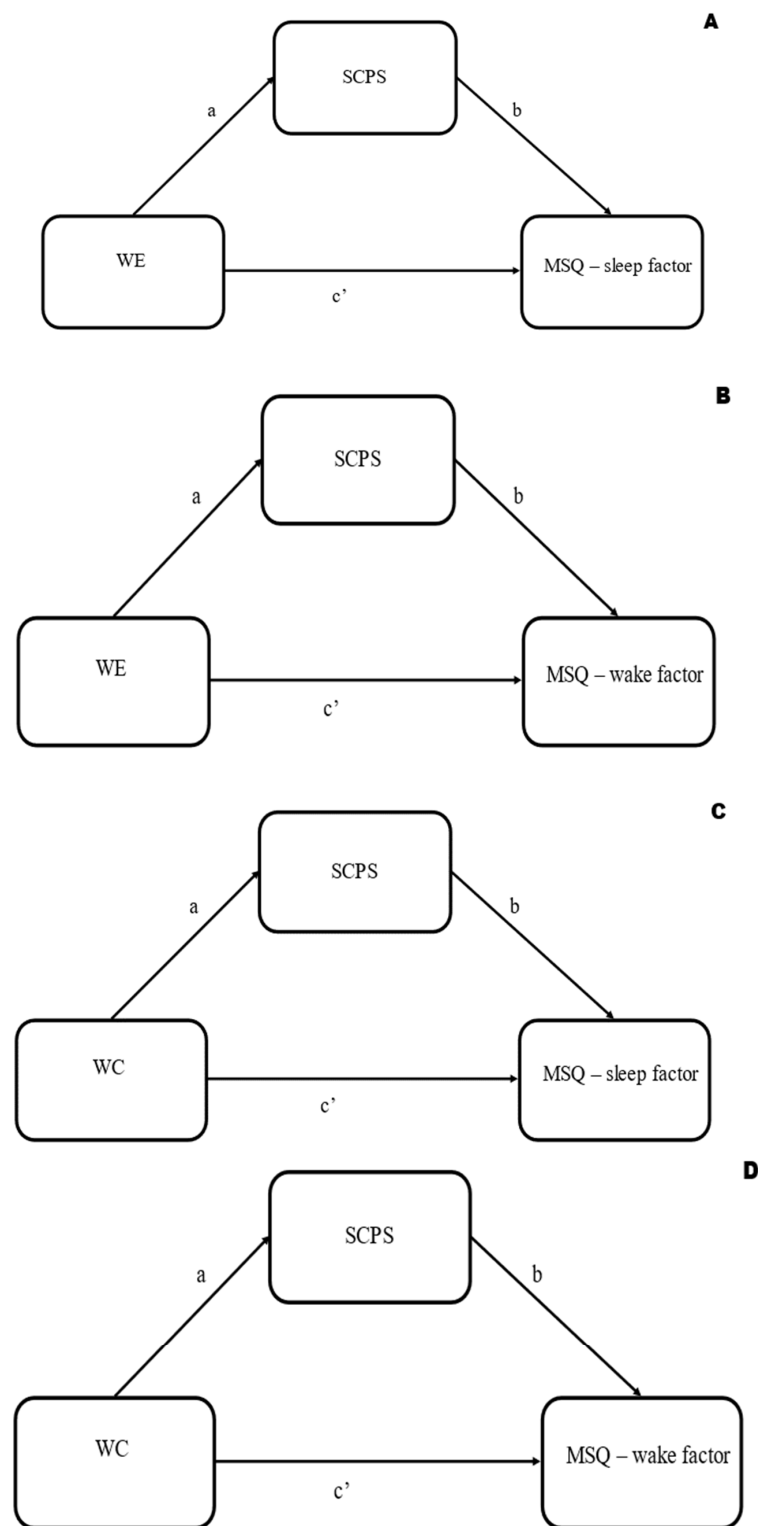


Figure 1. The mediation models tested: (A) the direct and indirect effects of WE on the sleep factor through SCPS, (B) the direct and indirect effects of WE on the wake factor through SCPS, (C) the direct and indirect effects of WC on the sleep factor through SCPS, (D) the direct and indirect effects of WC on the wake factor through SCPS. In each figure, parameters a and b indicate an indirect effect, while parameter c indicates a direct effect. Note: WE = working excessively; WC = working compulsively; SCPS = Self-Care Practices Scale; MSQ = Mini-Sleep Questionnaire.

3. Results

Regarding the gender difference, we found that women (33.8%) reported more sleep problems than men (10.1%), with $\chi^2(1) = 5.30, p < 0.05$. Similarly, we found that women (29.4%) reported more wake problems than men (8.4%), with $\chi^2(1) = 5.32, p < 0.05$. Age differences were also found when participants were categorized according to sleep cut-off (participants with sleep problems: 41.34 ± 10.71 vs. participants without sleep problems: $43.56 \pm 10.57; t(403) = 2.08, p < 0.05$, or when participants were categorized according to wake cut-off (participants with sleep problems: 39.63 ± 10.49 vs. participants without sleep problems: $44.37 \pm 10.41; t(403) = 4.43, p < 0.05$), suggesting that younger participants reported more sleep–wake problems than older individuals.

Table 2 summarizes the comparisons between individuals with sleep–wake problems and individuals without sleep–wake problems for SCPS, WE, and WC. As mentioned earlier, all participants with sleep or wake problems reported less frequent implementation of self-care practices and higher levels of work excess and compulsion than individuals without sleep–wake problems.

Table 2. The mean (and relative SD) for each group defined by sleep or wake cut-offs for self-care practices (SCPS), working excessively (WE) and working compulsively (WC) are reported. Also, the t value, degrees of freedom, and p value are provided.

	Group with Sleep Problems	Group without Sleep Problems	Group Comparison t -Test	Group with Wake Problems	Group without Wake Problems	Group Comparison t -Test
SCPS	17.34 (5.87)	20.99 (6.47)	$t(403) = 5.86,$ $p < 0.0001$	17.69 (6.06)	20.41 (6.50)	$t(403) = 4.18,$ $p < 0.0001$
WE	14.30 (3.69)	13.44 (3.41)	$t(403) = -2.42,$ $p < 0.05$	14.64 (3.60)	13.32 (3.44)	$t(403) = -3.69,$ $p < 0.0001$
WC	13.11 (3.25)	12.12 (2.83)	$t(403) = -3.27,$ $p < 0.001$	13.35 (3.22)	12.08 (2.86)	$t(403) = -4.16,$ $p < 0.0001$

When we adopted a continuous approach (Table 3), these data were substantially replicated due to negative correlations between sleep and wake factor scores and SCPS scores, suggesting that greater levels of sleep–wake problems were associated with lower frequencies of self-care behaviours. At the same time, we observed limited positive correlations between sleep or wake factor scores and WE and WC scores, which may suggest a slight association between sleep–wake problems and workaholism.

Table 3. The r values of correlations between variables.

	Sleep Factor Score	Wake Factor Score	SCPS Score	WE Score	WC Score
Sleep factor score	1	+0.66 **	−0.32 **	+0.19 **	+0.23 **
Wake factor score	-	1	−0.26 **	+0.26 **	+0.25 **
SCPS score	-	-	1	−0.11 *	−0.10 °
WE score	-	-	-	1	+0.51 **
WC score	-	-	-	-	1

** $p < 0.0001$, * $p < 0.05$, and ° $p = 0.052$.

Finally, Figure 2 summarises the results of the mediation analysis. When we tested the possibility that WE directly and indirectly (through SCPS) predicts sleep factor score, we found a significant model (squared $R^2 = 0.06, F(3, 401) = 9.08, p < 0.0001$). Importantly, we found significant direct ($\beta = +0.36, t = 3.65, p < 0.0005$) and indirect ($\beta = +0.08, CI: +0.01–+0.15$) effects (Figure 2A). Similarly, when the direct and indirect effects of WE on the wake factor score were tested, the model was significant (squared $R^2 = 0.16, F(3, 401) = 24.63,$

$p < 0.0001$), and WE predicted the wake factor directly ($\beta = +0.43$, $t = 5.52$, $p < 0.0001$) and indirectly ($\beta = +0.01$, CI: $+0.0014$ – $+0.02$), as shown in Figure 2B. When we simultaneously tested the predictive effect of WC on the sleep factor score by SCPC, we found a significant model (squared $R^2 = 0.07$, $F(3, 401) = 10.77$, $p < 0.0001$). The WC showed a direct ($\beta = +0.49$, $t = 4.27$, $p < 0.0001$) and indirect ($\beta = +0.09$, CI: $+0.01$ – $+0.17$) effect on sleep factor score (Figure 2C). Consistent with the previous results, we observed a significant model (WC \rightarrow SCPS \rightarrow wake factor score), with squared $R^2 = 0.13$, $F(3, 401) = 20.51$, $p < 0.0001$. As shown in Figure 2D, WC had a direct ($\beta = +0.40$, $t = 4.38$, $p < 0.0001$) and indirect ($\beta = +0.06$, CI = $+0.01$ – $+0.12$) effect on the wake factor score.

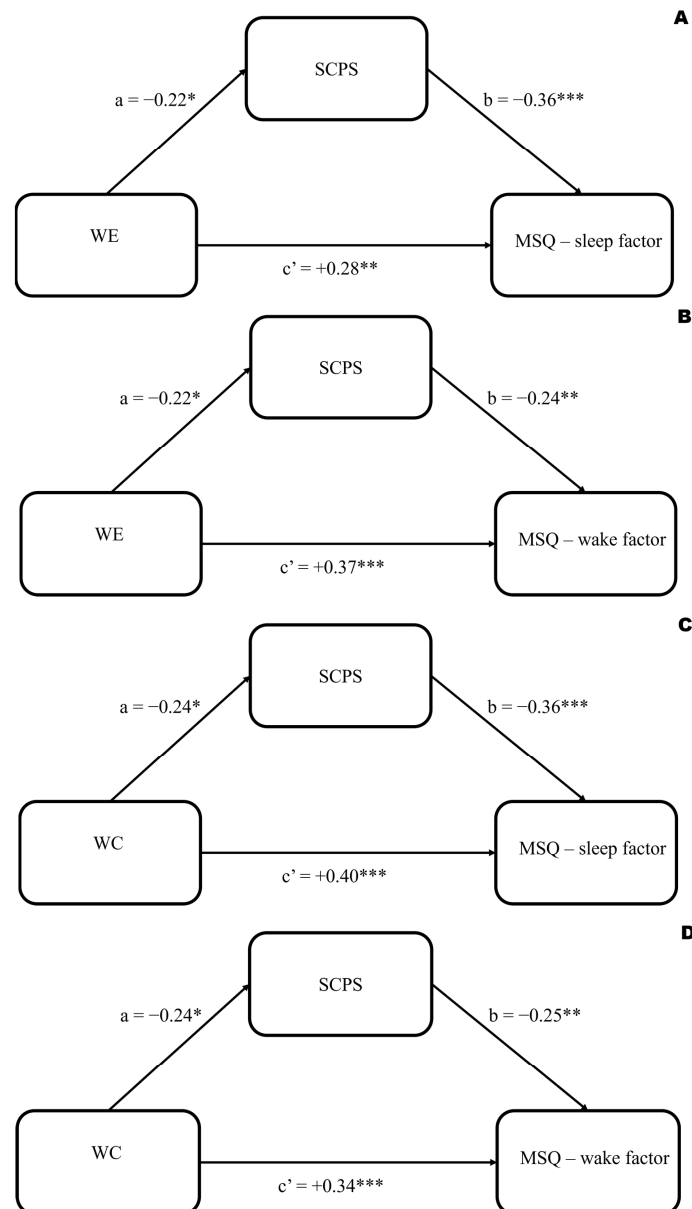


Figure 2. Results of the mediation analysis. (A) The model testing the relationship between WE and the sleep factor through the mediation of SCPS; (B) the model testing the relationship between WE and the wake factor through the mediation of SCPS; (C) the model testing the relationship between WC and the sleep factor through the mediation of SCPS; (D) the model testing the relationship between WC and the wake factor through the mediation of SCPS. In all figures, * indicates $p < 0.05$, ** indicates $p < 0.005$, and *** indicates $p < 0.0001$.

4. Discussion

The present study tested the possibility that the relationship between workaholism, defined as working excessively and compulsively (the behavioural and cognitive components of workaholism, respectively), and sleep–wake quality was fully mediated by the use of self-care practices among the workers surveyed during the first Italian COVID-19 outbreak. Our results clearly showed that workaholics reported a more limited use of self-care practices during the first COVID-19 lockdown compared to non-workaholics and, in turn, showed greater levels of sleep–wake problems. Using both categorical and continuous approaches, we observed that individuals who scored higher on WE and WC reported engaging in self-care practices less frequently and had higher levels of sleep–wake problems. These assumptions were confirmed in the analysis of the correlational pattern, as WE and WC correlated negatively with the SCPS and positively with the scores of the sleep and wake factors (i.e., higher scores for both factors of the MSQ reflect problems and low quality [51]). We found that individuals with sleep–wake problems reported lower scores on the SCPS and higher scores on WE and WC compared to participants who did not report sleep–wake problems. These findings seem to reflect, on the one hand, the association between workaholism and sleep–wake problems [16,17,19–24,36,54] and, on the other hand, the importance of self-care as engagement in specific behaviours [55] in promoting subjective well-being, a beneficial lifestyle, and stress reduction [56,57]. In line with [55], self-care involves the practice of important behaviours, such as sleep, diet, exercise, and rest. Most likely, the stress triggered by the lockdown in Italy [26–30] led to an abrupt change in work habits and schedules, which was accompanied by an increase in workaholism. In other words, it appears that the COVID-19 pandemic has led to increased workloads, more technological stress, and longer working hours for hospital workers and white-collar remote workers, which are associated with increased subjective sleep–wake problems.

These considerations are supported by the mediation analyses, as we found a direct influence of excessive and compulsive working on sleep–wake problems, confirming that both the cognitive and behavioural components of workaholism negatively affect the sleep–wake cycle. A possible explanation for the preceding pattern of results may be related to the fact that workaholism elicits sympathetic arousal (e.g., worrying about work and work-related activities even when not at work), and this arousal may lead to a change in homeostatic sleep drive [58–60] as a consequence of disturbing the normal sleep–wake cycle. Poor night's sleep may be associated with less efficient daily functioning and a likely increase in daytime sleepiness. Moreover, in all models, self-care practices mediated the relationship between workaholism and sleep–wake problems. This finding could confirm, for example, the positive effect of appropriate sleep hygiene, which is a self-care practice, on well-being, as well as the effect of healthier sleep patterns and their role in psychological health [40]. These model patterns seem to confirm our studies [29,30], suggesting that self-care practices play a positive role in sleep–wake problems. Thus, our models seem to indicate that workers should be trained in self-care to counteract the negative consequences of work addiction. In this way, self-care practices could support a healthy work–life balance and thus a natural sleep–wake cycle. Our data are consistent with the recommendation to promote self-care for workers at three different levels: first, self-care requires personal initiative, as workers should understand their self-care needs in order to implement strategies to achieve these goals [61]; second, the contribution of specialized work-related health and counselling services, such as wellness coaching and positively oriented interventions, would be valuable to this end [41]; third, self-care practices should include professional support structures (e.g., workload and time management or revitalization and energy generation [44]) to promote overall well-being. Further studies should examine the influence of these three components of self-care on sleep–wake quality and workaholism in the context of different employers.

Although the present study highlights a possible mechanism related to the association between workaholism, self-care, and sleep–wake problems, we acknowledge some important limitations. First, our study is cross-sectional; therefore, it does not allow us to examine the causal relationship between the variables included in this study. In other

words, the results of the mediation analysis (i.e., that workaholism is related to lower levels of personal self-care, which in turn is related to sleep–wake problems) and the categorical and continuous approaches should be interpreted with caution. Consequently, further studies with a longitudinal design should be conducted to provide stronger evidence for cause-effect relationships between these variables. A second limitation of the study is related to the use of self-report questionnaires to assess all measures and carries the risk of participant consent and social desirability [62]. Therefore, for future studies, we recommend the use of objective measurement methods, such as actigraphy, to measure the quality of the sleep–wake cycle. Third, we recruited a convenience sample because we included participants who voluntarily responded to the online survey. Furthermore, due to the heterogeneity of the sample, it was not possible to make further comparisons, e.g., in terms of geographical location or occupational groups. Regarding the characteristics of the sample, no information was collected on the type of sector (private or public), so a comparison between these groups was not possible. Although a similar distribution of gender or geographical location was found for participants with and without children, the latter group was younger than the former, and slight differences were found between these two groups in terms of occupational characteristics (e.g., participants without children had more educational and social occupations, whereas participants with children had more managerial and executive positions). The presence/absence of children during the first Italian lockdown could influence work schedules and/or sleep–wake cycles. Future studies should take these variables into account. Given the differences between men and women in the mean scores for wake problems, a moderated mediation model that takes gender into account as a moderating variable could be an interesting tool for future research. This moderating analysis could integrate the results of our study as we controlled for gender in our mediation analysis. Although we used a definition of workaholism that is consistent with other studies in the literature [1–8,10–14,16,17], there are multiple definitions of workaholism in the literature, and different measurement scales for workaholism could be used. Therefore, future studies should explore the relationship between the variables used in the present study and a different definition of workaholism in order to arrive at a more general definition and measurement of the phenomenon. Finally, future studies should also examine the role of technostress [63] in the relationship between workaholism and sleep–wake problems.

5. Conclusions

The current study confirms the detrimental effects of cognitive and behavioural aspects of workaholism on sleep–wake quality and suggests, for the first time, the mediating role of self-care practices in this relationship. Thus, the present study suggests not only that workaholism as a stressor affects the quality of the sleep–wake cycle but also that self-care practices can help in the management of work-related stress by improving sleep–wake quality. Finally, this study suggests that, in the event of a full lockdown in response to the spread of a pandemic, adopting and using personal self-care resources is a useful strategy as a possible countermeasure to the negative impact of the pandemic on psychophysical well-being [64].

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