

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

**Organizational efficiency and co-worker incivility: a cross-national study of nurses in the USA and Italy**

**This is a pre print version of the following article:**

*Original Citation:*

*Availability:*

This version is available <http://hdl.handle.net/2318/1655073> since 2018-03-29T16:44:38Z

*Published version:*

DOI:10.1111/jonm.12587

*Terms of use:*

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)

**Organizational efficiency and co-worker incivility: A cross-national study of nurses in the U.S. and Italy**

Journal:	<i>Journal of Nursing Management</i>
Manuscript ID	JNM-17-0048.R2
Manuscript Type:	Original Article
Topic Areas:	Workloads, Work Environment, Quality of Work Environment, Nursing Management, Behaviour
Research Methods:	Statistics, Surveys, Quantitative Methods, Questionnaire Designs

SCHOLARONE™  
Manuscripts

Copy

1  
2  
3 **Organizational efficiency and co-worker incivility: A cross-national study of nurses in**  
4  
5 **the U.S. and Italy**  
6

7 **Abstract**  
8

9 **Aim.** To examine the relationship of co-worker incivility (CWI) with organizational  
10 efficiency, workload and intention to leave in nursing samples from two different countries,  
11 the U.S. and Italy.  
12  
13  
14  
15

16 **Background.** Organizational efficiency has received little attention as a possible  
17 correlate of CWI in the nursing management literature. Studies on CWI have primarily been  
18 carried out in North America and no cross-national studies are available.  
19  
20  
21  
22

23 **Method.** Data were collected by a self-report questionnaire involving **nurses** from the  
24 U.S. (n=341) and Italy (n=313).  
25  
26  
27  
28

29 **Findings.** Organizational efficiency was negatively associated with workload, CWI,  
30 and intention to leave in both samples. The path from CWI to intention to leave was also  
31 positive and significant in both samples. Workload was positively associated with CWI and  
32 intention to leave in the U.S. sample, but not in the Italian sample.  
33  
34  
35  
36  
37  
38

39 **Conclusion.** The present study suggests that organizational efficiency is central to  
40 understanding both CWI and intention to leave among nurses.  
41  
42  
43

44 **Implications for Nursing Management.** Nurse administrators should adopt  
45 interventions aimed at fostering organizational efficiency in an effort to reduce nurse CWI.  
46  
47  
48

49 **Keywords:** Co-worker incivility, Organizational efficiency, Workload, Intention to  
50 leave, Conservation of Resource theory, Cross-national study.  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

## Introduction

Co-worker incivility (CWI) is one of the subtlest forms of mistreatment, referring to any low intensity deviant behavior(s) in violation of norms of mutual respect, with ambiguous intent to harm the target (Andersson & Pearson 1999). It encompasses rudeness (e.g., raising the voice), disrespect (e.g., ignoring or excluding a worker), or unfairness (e.g., doing demeaning things to a worker).

While the CWI literature has considerably grown in the last decade, knowledge on this topic needs to be further enhanced. A recent systematic review (Schilpzand et al. 2016) revealed that, whereas many studies demonstrated the role of CWI in fostering job stress (e.g., Goussinsky & Livne 2016) and job abandon (e.g., Laschinger et al. 2009), few (three of the 36 studies in the review by Schilpzand et al.) assessed variables describing the quality of the work processes as possible correlates of CWI. In nursing context, identifying the aspects of the work environment sustaining incivility is critical. As pointed out by Mikaelian & Stanlety (2016), the forces of CWI may be compounding the staffing shortfall issue by pushing nurses out of the profession.

Another important limitation of the CWI current literature is that studies have mostly been carried out in North America (Schilpzand et al. 2016). To the best of our knowledge, no cross-national studies are available in nursing or in other work contexts.

### *The present study*

The present study used the Conservation of Resource theory (COR, Hobfoll, 1989) as a theoretical framework. The concept of a resource is central in this theory, which states that the prime human motivation is to obtain, maintain, and accumulate resources. In organizational settings, as pointed out by Hobfoll and Shirom (2001), resources are those aspects of the work environment that help in acquiring new resources, achieving work goals or in reducing workers' physiological and psychological costs.

1  
2  
3 A central tenet of the COR theory is the concept of the “loss spiral” (Hobfoll, 1989)  
4 that refers to a process of expense of resources that makes them unavailable to cope with  
5 secondary loss, thus, potentially leading to further resource loss. The notion of “loss spirals”  
6 is often used to explain why individuals working in stressful or poor-resource work  
7 environments are vulnerable to secondary resource losses and, thus, are likely to take a  
8 defensive position to protect themselves from further losses.  
9

10  
11 The present study, using the loss spiral concept (Hobfoll, 1989), aimed to test in two  
12 samples of nurses from different countries, i.e., the U.S. and Italy, whether CWI plays a role  
13 in linking variables that describe the quality of the work process (i.e., organizational  
14 efficiency and workload) and intention to leave the job.  
15

16  
17 This study is of importance as it may contribute to building generalizable theoretical  
18 knowledge across nursing settings in various national contexts on mechanisms responsible  
19 for the spreading of CWI and its detrimental ramifications.  
20

### 21 22 *The relationship of organizational efficiency with CWI*

23  
24 According to Arnetz et al. (2011a, 2011b), organizational efficiency may be defined as  
25 the employees’ perception of how well work processes function at their workplace. It  
26 includes an evaluation of decision-making processes, the degree to which goals are shared,  
27 how work is planned and resources are utilized. Those studies indicated that organizational  
28 efficiency helps understand job well-being both in the general working population and in the  
29 nursing context. Despite that, it remains an understudied dimension and no prior studies have  
30 considered the relationship between efficiency and CWI.  
31

32  
33 COR theory suggests that a reduced level of organizational efficiency, being a  
34 condition of poor resources, may work as an initiator of a loss process, thus favoring the  
35 spreading of CWI. Although there is no empirical evidence in support of this statement, there  
36 are logical arguments, consistent with the COR theory, that suggest its plausibility. CWI may  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 arise because of an inefficient work environment, which may encourage different visions  
4 among nurses regarding how to carry out the job. In fact, in an organization in which  
5  
6 resources are not optimally utilized or goals are not shared, workers may be more prone to  
7  
8 secondary loss, such as being target of CWI, as they are more likely to be overloaded, to  
9  
10 make mistakes, or experience disagreement with other workers (Bolino & Turnley 2005).  
11  
12

13  
14 Based on this, we propose that:

15  
16 **H1:** Efficiency is negatively associated with CWI.

17  
18 *The relationship of workload with CWI*  
19

20  
21 The principle of the loss spiral also suggests that workload may mediate the  
22 relationship between efficiency and CWI. A workplace in which organizational processes do  
23 not work well can be characterized by an increased workload and, as a result, CWI may be  
24 more frequent as well.  
25  
26  
27  
28

29  
30 Workload is a job demand and refers to the amount of work assigned to or expected  
31 from a worker in a specified time period. In line with the loss spiral concept, work overload  
32 can be seen as a compensation strategy that the employee may be required to put into action  
33 in order to compensate for the demands related to inefficiency. Although job demands are not  
34 necessarily negative, they are generally associated with the loss process because workers, in  
35 order to accomplish demands, are required to use personal resources (i.e., energy, time, etc.)  
36 that may not be recovered (Hobfoll & Shirom 2001). Moreover, high workload may make  
37 workers more vulnerable to further losses, such as being target of CWI. This may occur  
38 because employees, when faced with excessive demands, may behave in ways that encourage  
39 others to treat them rudely (Taylor & Kluemper 2012).  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50

51  
52 From an empirical point of view, there is evidence supporting significant associations  
53 both between workload and CWI (e.g., Taylor & Kluemper 2012; Magnavita 2014) and  
54 efficiency and workload (Arnetz et al. 2011a). However, the mediating role of workload  
55  
56  
57  
58  
59  
60

1  
2  
3 (*Ha*), despite its plausibility and its consistency with the principle of loss spiral, has not been  
4  
5 previously tested. The present study aims to expand knowledge in this direction. To confirm  
6  
7 *Ha*, in addition to H1, this study will also examine the following hypotheses (Figure 1):  
8

9  
10 **H2:** Efficiency is negatively associated with workload.

11  
12 **H3:** Workload is positively associated with CWI.

13  
14 *The relationship of CWI and intention to leave the job*

15  
16 A work environment characterized by poor efficiency, high workload, and CWI may  
17  
18 lead workers to develop negative attitudes and behaviors driven by the goal of minimizing  
19  
20 losses and to protect themselves from further losses (e.g., energy, career opportunity). In that  
21  
22 sense, a possible outcome is intention to leave. In COR terms, it represents a withdrawal  
23  
24 strategy that individuals may plan to put into action in order to interrupt the loss spiral (Sliter  
25  
26 et al. 2012).  
27

28  
29 The predictive roles of CWI and workload on intention to leave were widely  
30  
31 supported in studies carried out in many working settings, including nursing (e.g., Laschinger  
32  
33 et al. 2009). Accordingly, we hypothesized:  
34

35  
36 **H4:** CWI is positively associated with intention to leave.

37  
38 **H5:** Workload is positively associated with intention to leave.

39  
40 Although there are no studies specifically focused on the association between  
41  
42 efficiency and intention to leave, many studies demonstrated that the quality of the  
43  
44 organizational processes affects worker attitudes toward the job, including intention to leave  
45  
46 (Hayes et al. 2006). Hence, we hypothesized:  
47

48  
49 **H6:** Efficiency is negatively associated with intention to leave.

50  
51 Despite their consistency with the principle of the loss spiral and the presence of  
52  
53 empirical evidence that suggests their plausibility, no studies examined whether CWI  
54  
55 mediated the effect of efficiency (*Hb*) and workload (*Hc*), respectively, on intention to leave.  
56  
57  
58  
59  
60

1  
2  
3 The present study is intended to fill this gap. Accepting *Hb* implies confirming H1, H4, and  
4  
5 H6. To accept *Hc*, H2, H4, and H5 need to be confirmed (Figure 1).  
6

#### 7 8 *Testing for cross-national invariance*

9  
10 CWI prevalence rates considerably vary across cultures (Schilpzand et al. 2016).  
11  
12 Empirical evidence indicated that U.S. nurses are significantly more exposed than Italian  
13  
14 nurses to CWI (U.S. about 80%, e.g., Lewis and Malecha (2011); vs. Italy: about 40%, e.g.,  
15  
16 Magnavita & Hiponiemi 2012). An explanation for these differences can be given with the  
17  
18 help of the Hofstede theory (2001) which proposed that one of the dimensions by which a  
19  
20 culture can be classified is the extent to which its members try to control their impulses and  
21  
22 desires. CWI tends to be higher in cultures so called “indulgent” (e.g., Anglo-Saxon)  
23  
24 countries in which control over impulses are weaker rather than in “restrained” cultures (e.g.,  
25  
26 Mediterranean countries) in which control is stronger (Hosfede 2001). These cultural  
27  
28 differences suggest that, in order to advance in CWI literature, it is decisive to establish  
29  
30 whether it is appropriate or not to assume that factors relating to CWI can be generalized  
31  
32 across cultures (Schilpzand et al. 2016). Accordingly, we chose to test our hypotheses across  
33  
34 nursing samples from two different countries, i.e., the U.S. and Italy, which are typical  
35  
36 examples of an indulgent and a restrained culture, respectively (Hofstede 2001). The resulting  
37  
38 knowledge may help nurse administrators identify measures to prevent and manage CWI,  
39  
40 while considering possible culture-based characteristics.  
41  
42  
43  
44

45  
46 Given the absence of previous cross-cultural studies on CWI, statements on  
47  
48 differences or similarities between the two national samples in the tested relationships cannot  
49  
50 be made. Therefore, we included an exploratory hypothesis that all the relationships  
51  
52 hypothesized (Figure 1) would be cross-nationally invariant (**H7**).  
53

#### 54 **Method**

##### 55 56 *Data collection and participants* 57 58 59 60



1  
2  
3 In the U.S., data were collected via survey in a large, Midwestern hospital system. In  
4  
5 2013, 1389 questionnaires were mailed home to employees, along with a postage-paid return  
6  
7 envelope. A total of 341 (24.5%) nursing employees responded to the survey.  
8

9  
10 In Italy, data were gathered via survey in two medium-sized hospitals in the North-  
11  
12 Western area of the country in 2016. Questionnaires were distributed during working hours.  
13  
14 Employees were instructed to enclose the completed questionnaire in an envelope and to  
15  
16 leave it in a box placed by the researchers in each ward. A total of 557 questionnaires were  
17  
18 distributed and 313 questionnaires were returned to the research team (response rate: 56.1%).  
19

20  
21 Both national subsamples were made up of nurses and nurses aides engaged in direct  
22  
23 patient care work activities.  
24

#### 25 *Ethical considerations*

26  
27 In the survey in the U.S. hospital system, ethical approval was granted by the Human  
28  
29 Investigation Committee of the University and the Research Review Council of the hospital  
30  
31 system.  
32

33  
34 In Italy, the research protocol, designed in agreement with the Helsinki Declaration  
35  
36 (and subsequent revisions) and the Italian regulations on data protection and privacy (Law n.  
37  
38 196/2003), was approved by the Hospital Administrations and Nurse Coordinators. The  
39  
40 questionnaire was accompanied by a letter that openly described the research purpose, the  
41  
42 voluntary nature of participation, and the anonymity of the data collection and analysis. In  
43  
44 accordance with the country law, no further ethical approval was required since no vulnerable  
45  
46 individuals, patients, or minors took part in the study.  
47

#### 48 *Measures*

49  
50 *Organizational efficiency* and *workload* were measured using two subscales from the  
51  
52 Quality-Work-Competence questionnaire (QWC, Arnetz et al. 2011a). Organizational  
53  
54 efficiency consisted of four items, using a response scale ranging from 1="strongly agree" to  
55  
56  
57  
58  
59  
60

1  
2  
3 4 = "strongly disagree" (e.g., "[At my workplace] Resources are optimally utilized;"  $\alpha_{US}=.75$ ;  
4  
5  $\alpha_{ITA}=.76$ ).

6  
7 Workload consisted of three items, employing a response scale ranging from 1="often"  
8  
9 to 4="never" (e.g. "Do you have time to plan your work tasks ahead of time?;"  $\alpha_{US}=.75$ ;  
10  
11  $\alpha_{ITA}=.76$ ). Previous studies (Arnetz et al. 2011a, 2011b) demonstrated satisfactory reliability  
12  
13 in nursing settings for both subscales ( $\alpha>.80$ )  
14

15  
16 *Co-worker incivility* (CWI) was measured using a scale adapted by Sliter et al. (2012).  
17  
18 It contains four items aimed at capturing the frequency of being target of CWI during the past  
19  
20 12 months (e.g., "How often do co-workers ignore you or exclude you at work?" response  
21  
22 scale: 1="never", 5="always;"  $\alpha_{US}=.86$ ;  $\alpha_{ITA}=.77$ ). Reliability and validity of this scale were  
23  
24 previously demonstrated by international studies involving various types of frontline workers  
25  
26 (e.g., Rhee et al. 2016).  
27

28  
29 *Intention to leave* was measured by a single item by Cammann et al. (1983) which  
30  
31 states: "I often think about quitting." Responses were given on a five-point Likert type  
32  
33 (1="strongly disagree", 5="strongly agree").  
34

35  
36 *Control variables.* As suggested by previous literature (Cortina et al. 2001; Magnavita  
37  
38 & Hiponiemi 2011; Viotti et al. 2015), gender, age, and occupation (nurses vs. nurse aides)  
39  
40 were included as control variables as they may work as potential confounders in the  
41  
42 relationships under study.  
43

#### 44 45 *Analysis strategy*

46  
47 Analyses were performed using SPSS 22 (IBM 2013) and AMOS (Arbuckle 2006).

48  
49 Preliminary analyses included t-tests and Pearson's correlations to examine univariate  
50  
51 relationships among study variables.  
52

53  
54 Multi-Sample Structural Equation Modelling (MS-SEM) was employed to  
55  
56 simultaneously analyze data from two national samples to assess invariance of paths across  
57  
58

1  
2  
3 groups. Testing for invariance entails the estimation of a model in which certain parameters  
4 are constrained to be equivalent across samples and, then, the comparison of this model with  
5 a less restrictive model (non-invariant) in which these parameters are allowed to vary across  
6 samples (Byrne 2013).  
7  
8  
9

10  
11 Based on Byrne (2013) suggestions, we developed our analyses in a series of steps. In a  
12 first step, we estimated the model across two samples simultaneously without imposing any  
13 equality constraints. In a second step, we imposed equality constraints factor loadings ( $\lambda$ )<sup>1</sup>  
14 across the two subsamples ( $\lambda_{US}=\lambda_{ITA}$ ). Though this step we checked whether for multi-item  
15 scales, factor-item saturations were invariant across groups. Next, in order to assess the  
16 relationships hypothesized, the regression paths ( $\beta$ ) were equality constrained across groups  
17 ( $\beta_{US}=\beta_{ITA}$ ).  
18  
19  
20  
21  
22  
23  
24  
25  
26

27 The goodness of fit of models were evaluated using the ratio of chi-square to the  
28 degrees of freedom ( $\chi^2/df$ ), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI),  
29 the Standardized Root Mean Square Residual (SRMR), and the Root Mean Square Error of  
30 Approximation (RMSEA). According to Schreiber et al. (2006), model fit is satisfactory if a  
31 value of  $\chi^2/df$  is  $\leq 3$ , CFI and TLI are  $\geq .95$ , SRMR and RMSEA are  $\leq .08$ .  
32  
33  
34  
35  
36  
37

38 **The CFI-difference test** (Meade et al. 2008) was used to determine the presence of  
39 invariance. A difference higher than .002 in the CFI value between the less constrained and  
40 the more constrained model indicates lack of invariance.  
41  
42  
43  
44  
45

46 In order to ascertain mediation, we assessed the indirect effects through the  
47 bootstrapping procedure (Cheung & Lau 2008). Bootstrapping is a test that involves  
48 “resampling” the data many times with replacements to generate an empirical estimation of  
49 the entire sampling distribution of a statistic. According to Cheung & Lau (2008), in order to  
50  
51  
52  
53  
54

55  
56 <sup>1</sup> In reporting SEM findings, we followed the convention to refer to the standardized factor loading values using  
57 the lambda ( $\lambda$ ) Greek letter. (Byrne 2013). Similarly, the beta ( $\beta$ ) Greek letter was use to refer to the  
58 standardized path coefficients (see above in the text).  
59  
60

1  
2  
3 minimize the risk to incur Type I error, the use of SEM with the bootstrapping procedure  
4  
5 requires a sample size  $\geq 200$ .  
6  
7

## 8 **Results**

### 9 *Descriptive analyses*

10  
11  
12  
13  
14 Table 1 reports socio-demographic data in the two national samples. According to  $\chi^2$   
15  
16 tests, age class distribution significantly differed across subsamples (younger classes were  
17  
18 more numerous in the U.S. sample), whereas the Italian sample included more nurses than the  
19  
20 U.S. sample (Italy=92.2%; U.S.=76.8%).  
21  
22

23  
24 Table 2 reports findings of the univariate analyses. Pearson's correlations carried out  
25  
26 in each subsample between major study variables were all significant and in the expected  
27  
28 direction. T-tests conducted on each major study variable across subsamples revealed that,  
29  
30 whereas workload was significantly higher in the Italian subsample ( $m_{US}=2.22$ ;  $m_{ITA}=2.58$ ),  
31  
32 CWI ( $m_{US}=1.91$ ;  $m_{ITA}=1.66$ ) and intention to leave ( $t=12.25$ ,  $m_{US}=2.92$ ;  $m_{ITA}=1.91$ ) were  
33  
34 significantly higher in the U.S. subsample. No significant difference was observed on  
35  
36 organizational efficiency.  
37  
38

### 39 *Hypothesis testing*

40  
41  
42  
43 The structural model (i.e., MS-SEM) used to test our hypotheses was developed by  
44  
45 modelling efficiency, workload, and CWI (i.e., multi-item measures) as latent variables, and  
46  
47 intention to leave (i.e., single-item measure) as an observed variable. As no serious violations  
48  
49 from the normality distribution were found (all the skewness and kurtosis values of the study  
50  
51 variables were within  $\pm 2$ ), Maximum Likelihood, was employed as an estimation method.  
52  
53

54  
55  
56 In a first step, the hypothesized model was tested across the subsamples, without  
57  
58 imposing any equality constraints. The model fit was satisfactory (Table 3, *a*). Hence, a more  
59  
60

1  
2  
3 constrained model was tested by equally constraining all factor coefficients ( $\lambda_{US}=\lambda_{ITA}$ ) across  
4  
5 the two subsamples. Model fit was satisfactory (Table 3, *b*) and all factor loadings were  
6  
7 statistically significant in both national samples; however, a CFI difference of .16 ( $>.002$ )  
8  
9 between this and the unconstrained model (*a*) was observed, indicating that factor loadings  
10  
11 were not invariant across the U.S. and the Italian subsamples.  
12  
13

14  
15 Next, the invariance of the regression paths across groups was tested (Table 3, *c*,  
16  
17  $\beta_{US}=\beta_{ITA}$ ). Since factorial invariance was not achieved ( $\lambda_{US}\neq\lambda_{ITA}$ ), at this step, factor loadings  
18  
19 were allowed to vary across subsamples. The model fit was not completely acceptable. The  
20  
21 ratio  $\chi^2/df$  was slightly above 3 and SRMR greater than .07. Moreover, the CFI difference  
22  
23 between the present model and the model with the unconstrained regressed paths (*a*) was  
24  
25 greater than .002. These findings suggested that the relationships among the study variables  
26  
27 were not invariant across samples. Hence, we proceed by inspecting the CFI differences for  
28  
29 each path separately in order to detect the source of invariance. The paths from efficiency to  
30  
31 workload (CFI-difference=.035), from workload to CWI (CFI-difference=.004), and from  
32  
33 workload to intention to leave (CFI-difference=.005) were found non-invariant. On the other  
34  
35 hand, the following paths demonstrated invariance: efficiency to CWI (CFI-difference=.001),  
36  
37 CWI to intent to leave (CFI-difference=.000), and efficiency to intention to leave (CFI-  
38  
39 difference=.001). Accordingly, we tested a model in which while the former three paths were  
40  
41 unconstrained and the latter three paths were equally constrained across samples (Table 3, *d*).  
42  
43 As this model reached a satisfactory fit, to further strengthen findings, it was adjusted by the  
44  
45 effect of control variables. No equality constraints were imposed for control variables. The  
46  
47 model fit was good as well (Table 3, model *e*) and values of the regressed paths were  
48  
49 analogous to those obtained in the non-controlled model (in terms of directions and  
50  
51 significance). Whereas in the U.S. subsample all the regressed paths were found to be  
52  
53 significant and in the expected direction, in the Italian subsample the paths from workload to  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 CWI and from workload to intention to leave did not show significant associations (Table 4).  
4  
5 These results suggested accepting H1, H2, H4, H6 in both subsamples. However, invariance  
6  
7 across the subsamples (H7) was confirmed regarding H1, H4, and H6 only. H3 and H5 were  
8  
9 accepted in the U.S. samples but not in the Italian samples (Table 4).  
10

11  
12 Bootstrap tests (Table 5) confirmed the mediating role of workload in the relationship  
13  
14 between efficiency and CWI (Ha), CWI in the relationship between efficiency and intention  
15  
16 to leave (Hb) and between workload and intention to leave (Hc), respectively, in the U.S.  
17  
18 subsample. In the Italian subsample, the only significant indirect effect was observed between  
19  
20 efficiency and intention to leave, confirming the mediating role of CWI between these two  
21  
22 variables (Hb).  
23  
24

### 25 26 27 *Discussion*

28  
29 One of the main contributions of the present study was to analyze the mechanisms  
30  
31 linking characteristics of work processes, CWI, and intention to leave in a cross-national  
32  
33 perspective. Organizational efficiency has received little attention in previous nursing  
34  
35 management literature. The present study revealed its centrality in understanding both CWI  
36  
37 and intention to leave phenomena. In particular, the mediating role of CWI in the relationship  
38  
39 between organizational efficiency and intention to leave was supported in both the U.S. and  
40  
41 the Italian sample.  
42  
43  
44

45  
46 On the other hand, different mechanisms were highlighted regarding workload across  
47  
48 the two national samples. In the U.S. sample, workload was found to contribute to shape the  
49  
50 hypothesized loss spiral by mediating the relationship between efficiency and CWI and by  
51  
52 affecting intention to leave through CWI. On the contrary, in the Italian sample, workload was  
53  
54 not associated with either CWI or intention to leave. An interpretation for these results can be  
55  
56 given considering the macro socio-economic context in each nation. Regarding the  
57  
58  
59  
60

1  
2  
3 relationship between workload and intention to leave, it is important to consider that in Italy,  
4  
5 in the last 15 years, a generalized hiring freeze due to the welfare crisis has led to a resulting  
6  
7 increase in workload throughout the entire Italian health system. This generalized alarming  
8  
9 situation is confirmed by a study involving 10 European countries, where Italian nurses  
10  
11 emerged to be one of the groups most exposed to high job demands (Hasselhorn et al. 2003).  
12  
13 In this context, nurses might have become accustomed to a heavy workload, therefore not  
14  
15 considering it as a motivating factor for quitting. On the other hand, in the U.S., where the  
16  
17 unemployment rate is very low (U.S.: about 5% vs. Italy: about 20%), nurses may feel they  
18  
19 have more opportunities to improve their working conditions regarding workload, by  
20  
21 changing their job/organization (Mazurenko et al. 2015; Eurostat, 2016).  
22  
23  
24  
25

26 The significant association between workload and CWI in the U.S. but not in the  
27  
28 Italian context is consistent with the Hofstede theory (2001): in indulgent cultures (e.g., U.S.),  
29  
30 co-workers may be less able to control themselves from rudely treating a co-worker who has  
31  
32 trouble getting the job done due to excessive demands (Taylor & Kluemper 2012). Another  
33  
34 feasible explanation for this difference across national settings, consistent with the  
35  
36 conservation of resource principle (Hobfoll 1989), comes from Bolino and Turnley (2005).  
37  
38 Specifically, they noted that aggression typically goes beyond an employee's formally  
39  
40 prescribed job duties, and engaging in such acts is likely to require additional employee  
41  
42 resources (e.g., time, energy). As such, when job demands are chronically high, such as in the  
43  
44 Italian nursing context, employees may need to conserve energy to get the job done. On the  
45  
46 other hand, in a context (such as U.S. nursing setting) in which workload is high but not  
47  
48 excessive, workers may use CWI as a "strategy" (even though dysfunctional) to push other  
49  
50 co-workers in getting the job done.  
51  
52  
53  
54

55 However, the present study suggests that the role of workload in loss spiral needs to  
56  
57 be further explored. In particular, since previous studies suggested that job demands -even if  
58  
59  
60

1  
2  
3 they deplete energy- are not necessarily negative, future research should try to clarify under  
4  
5 which conditions they may represent a risk by fostering CWI and intention to leave.  
6  
7

### 8 *Limitations*

9

10  
11 The most relevant study limitation is the cross-sectional design. Future research  
12  
13 should employ a longitudinal design to explore the cross-lagged associations between the  
14  
15 constructs examined. Longitudinal studies may also be useful for understanding whether and  
16  
17 how the relationships among between these constructs changes over time.  
18  
19

20  
21 Another limitation is that all the measures employed were self-reported. Data coming  
22  
23 from a single source may introduce the issue of common method variance. Future studies  
24  
25 may benefit from employing research designs that include a combination of objective (e.g.,  
26  
27 administrative data on nurse turnover) and subjective measures or using data from multiple  
28  
29 sources (i.e., co-workers and supervisors).  
30  
31

32  
33 Finally, response rates differed significantly between the national samples  
34  
35 (U.S.=24.5%; Italy=56.1%). Cultural factors may have determined differences in nurse  
36  
37 attitudes to the questionnaire surveys. Future research should plan strategies (e.g.  
38  
39 communication) aimed at enhancing participation across national settings.  
40  
41

### 42 *Implications for nursing management*

43

44  
45 The present study has helped to shed light on the key role of CWI in linking variables  
46  
47 describing the quality of the work process and intention to leave the job. The complex  
48  
49 interrelations that emerged among these phenomena should be carefully considered when  
50  
51 interventions to address CWI in nursing context are planned. In line with previous studies,  
52  
53 our findings suggest that interventions aimed at improving the quality of leadership may help  
54  
55 to prevent CWI and intention to leave (Mikaelian & Stanley 2016) by contributing to  
56  
57  
58  
59  
60



1  
2  
3 enhanced efficiency. The development of leadership skills among **frontline nurse managers**,  
4  
5 through specific training, may contribute to the creation of conditions conducive to a more  
6  
7 efficient work environment. Such training would also enable **managers** to enhance the sharing  
8  
9 of work goals, to foster the quality of communication between nurses, and optimize  
10  
11 utilization of job resources in the unit.  
12  
13

14  
15 Moreover, our finding suggest that reflective practice group (Knight 2015) may  
16  
17 represent a useful tool to sustain both the quality of the work process and relationships among  
18  
19 co-workers. Reflective practice group is a technique that provides an opportunity for a work  
20  
21 team to collectively examine the daily practice and learn through and from experience, with  
22  
23 the end to identify shared visions regarding ways to improve the working processes. It is a  
24  
25 technique widely used in the nursing context, but so far, not specifically considered to  
26  
27 address work efficiency and CWI.  
28  
29

30  
31 Finally, other types of interventions aimed at improving the organizational process  
32  
33 may help to reduce CWI as well. For example, regularly scheduling meetings among unit  
34  
35 members specifically aimed at organizing work activities and sharing objectives may be  
36  
37 beneficial (**Mikaelian & Stanley 2016**). In addition, employing participative systems to make  
38  
39 decisions both at unit and at an organizational level may reinforce the quality of the process  
40  
41 and thus the quality of the relationships among co-workers (**Laschinger et al. 2012**).  
42  
43  
44

#### 45 **References**

46  
47 Arbuckle J.L. (2006) *Amos 7.0 User's Guide*. SPSS, Chicago, IL.

48  
49  
50  
51 Arnetz B.B., Lucas T., & Arnetz J.E. (2011a) Organizational climate, occupational  
52  
53 stress, and employee mental health: Mediating effect of organizational efficiency. *Journal of*  
54  
55 *Occupational and Environmental Medicine* **53**(1), 34-42.  
56  
57  
58  
59  
60

1  
2  
3 Arnetz J.E., Zhdanova L.S., Elsouhag D., Lichtenberg P., Luborsky M.R. & Arnetz  
4  
5 B.B. (2011b) Organizational climate determinants of resident safety culture in nursing homes.  
6  
7 *The Gerontologist* **51**(6), 739-749.

8  
9 Bentler P.M. (1995) *EQS structural equations program manual*. Multivariate  
10  
11 Software, Encino, CA.

12  
13  
14 Bolino M.C. & Turnley W.H. (2005) The personal costs of citizenship behavior: the  
15  
16 relationship between individual initiative and role overload, job stress, and work-family  
17  
18 conflict. *Journal of Applied Psychology* **90**(4), 740-748.

19  
20  
21 Byrne B.M. (2013) *Structural equation modeling with Mplus: Basic concepts, applications,*  
22  
23 *and programming*. Routledge, New York, NY.

24  
25  
26 Cammann C., Fichman M., Jenkins G.D. & Klesh J.R. (1983) Assessing the attitudes  
27  
28 and perceptions of organizational members. In *Assessing Organizational Change* (S.E.  
29  
30 Seashore, E.E. Lawler, P.H. Mirvis, & C. Cammann, eds.), pp. 71-138. John Wiley and Sons,  
31  
32 New York, NY.

33  
34  
35 Cheung G.W. & Lau R.S. (2008) Testing mediation and suppression effects of latent  
36  
37 variables: Bootstrapping with structural equation models. *Organizational Research Methods*  
38  
39 **11**(2), 296-325.

40  
41  
42 Cortina L.M., Magley V.J., Williams J.H. & Langhout R.D. (2001) Incivility in the  
43  
44 workplace: incidence and impact. *Journal of Occupational Health Psychology* **6**(1), 64-80.

45  
46 Eurostat (2016) Unemployment rates, seasonally adjusted, December 2016. Retrieved  
47  
48 from: [http://ec.europa.eu/eurostat/statistics-](http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Unemployment_rates_seasonally_adjusted_December_2016_(%25)_F2.png)  
49  
50 [explained/index.php/File:Unemployment\\_rates\\_seasonally\\_adjusted\\_December\\_2016\\_\(%2](http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Unemployment_rates_seasonally_adjusted_December_2016_(%25)_F2.png)  
51  
52 [5\)\\_F2.png](http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Unemployment_rates_seasonally_adjusted_December_2016_(%25)_F2.png), accessed 14 July 2017.

53  
54  
55 Goussinsky R. & Livne Y. (2016) Coping with interpersonal mistreatment: the role of  
56  
57 emotion regulation strategies and supervisor support. *Journal of Nursing Management* **24**(8),  
58  
59

1  
2  
3 1109-1118.

4  
5 Hasselhorn H.M., Tackenberg P. & Muller B.H. (2003) Working Conditions and  
6  
7 Intent to Leave the Profession Among Nursing Staff in Europe. Report No. 7. SALTSA. The  
8  
9 National Institute for Working Life, Stockholm.

10  
11 Hayes L.J., O'Brien-Pallas L., Duffield C., Shamian J., Buchan J., Hughes F., [...] &  
12  
13 Stone P.W. (2006) Nurse turnover: a literature review. *International Journal of Nursing*  
14  
15 *Studies* **43**(2), 237-263.

16  
17  
18 Hobfoll S.E. & Shirom A. (2001) Conservation of resources theory: Applications to  
19  
20 stress and management in the workplace. In *Handbook of Organizational Behavior* (R.T.  
21  
22 Golembiewski, ed.), pp. 57-81. Dekker, New York, NY.

23  
24  
25 Hobfoll S.E. (1989) Conservation of resources: A new attempt at conceptualizing  
26  
27 stress. *American Psychologist* **44**(3), 513-524.

28  
29  
30 Hofstede G. (1984) Culture's consequences: International differences in work-related  
31  
32 values (Vol 5). Sage, London.

33  
34 IBM (2013) *Statistical Package for Social Sciences (SPSS) for Windows. Version*  
35  
36 *22.0*. IBM, Armonk, NY.

37  
38  
39 Johan Hauge L., Skogstad A. & Einarsen S. (2007) Relationships between stressful  
40  
41 work environments and bullying: Results of a large representative study. *Work & Stress*  
42  
43 **21**(3), 220-242.

44  
45  
46 Knight S. (2015) Realising the benefits of reflective practice. *Nursing Times*  
47  
48 **111**(23/24), 17-19.

49  
50 Laschinger H.K., Leiter M., Day A. & Gilin-Oore D. (2009) Workplace  
51  
52 empowerment, incivility, and burnout: Impact on staff nurse recruitment and retention  
53  
54 outcomes. *Journal of Nursing Management* **17**(3), 302-311.

55  
56 **Laschinger, H.K., Leiter, M.P., Day, A., Gilin-Oore, D. & Mackinnon, S.P. (2012)**  
57  
58  
59  
60

1  
2  
3 Building empowering work environments that foster civility and organizational trust: Testing  
4  
5 an intervention. *Nursing Research* **61**(5), 316-325.  
6

7  
8 Lewis P.S. & Malecha A. (2011) The impact of workplace incivility on the work  
9 environment, manager skill, and productivity. *Journal of Nursing Administration* **41**(1), 41-  
10 47.  
11

12  
13  
14 Magnavita N. (2014) Workplace Violence and Occupational Stress in Healthcare  
15 Workers: A Chicken-and-Egg Situation—Results of a 6-Year Follow-up Study. *Journal of*  
16 *Nursing Scholarship* **46**(5), 366-376.  
17  
18

19  
20  
21 Magnavita N. & Heponiemi T. (2011) Workplace violence against nursing students  
22 and nurses: an Italian experience. *Journal of Nursing Scholarship* **43**(2), 203-210.  
23  
24

25  
26 Magnavita N. & Heponiemi T. (2012) Violence towards health care workers in a  
27 Public Health Care Facility in Italy: a repeated cross-sectional study. *BMC Health Services*  
28 *Research* **12**(1), 108.  
29  
30

31  
32 Mazurenko O., Gupte G. & Shan G. (2015) Analyzing US nurse turnover: Are nurses  
33 leaving their jobs or the profession itself? *Journal of Hospital Administration* **4**(4), 48-56.  
34  
35

36  
37 Meade A.W., Johnson E.C. & Braddy P.W. (2008) Power and sensitivity of  
38 alternative fit indices in tests of measurement invariance. *Journal of Applied Psychology* **93**,  
39 568-592.  
40  
41

42  
43 Mikaelian B. & Stanley D. (2016) Incivility in nursing: from roots to repair. *Journal*  
44 *of Nursing Management* **24**(7), 962-969.  
45  
46

47 Rhee S.Y., Hur W.M. & Kim M. (2016) *Journal of Business Psychology* (online first).

48  
49 Schilpzand P., De Pater I.E. & Erez A. (2016) Workplace incivility: A review of the  
50 literature and agenda for future research. *Journal of Organizational Behavior* **37**, S57-S88.  
51  
52

53  
54 Schreiber J.B., Nora A., Stage F.K., Barlow E.A. & King J. (2006) Reporting  
55 structural equation modeling and confirmatory factor analysis results: A review. *Journal of*  
56  
57  
58  
59  
60

1  
2  
3 *Educational Research* **99**(6), 323-338.

4  
5 Sliter M., Sliter K. & Jex S. (2012) The employee as a punching bag: The effect of  
6 multiple sources of incivility on employee withdrawal behavior and sales performance.

7  
8  
9 *Journal of Organizational Behavior* **33**(1), 121-139.

10  
11 Taylor S.G. & Kluepfer D.H. (2012) Linking perceptions of role stress and incivility  
12 to workplace aggression: the moderating role of personality. *Journal of Occupational Health*  
13  
14  
15  
16  
17 *Psychology* **17**(3), 316-329.

18  
19 Viotti S., Gilardi S., Guglielmetti C. & Converso D. (2015) Verbal aggression from  
20 care recipients as a risk factor among nursing staff: a study on burnout in the JD-R model  
21 perspective. *BioMed Research International* 215267.  
22  
23  
24  
25  
26  
27

## 28 Captions

29  
30  
31 Figure 1. Graphical representation of the study hypotheses.

32  
33  
34 Appendix 1. Graphical representation of the final model in the US sample. Dash line arrows  
35 indicate non-significant paths.  
36  
37

38  
39 Appendix 2. Graphical representation of the final model in the Italian sample. Dash line arrows  
40 indicate non-significant paths.  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

Table 1. Background variables

		U.S. sample	Italian sample	$\chi^2$ -test
<i>Gender</i>	Male	37 (10.9%)	44 (14.1%)	1.52 (n.s.)
	Female	304 (89.1%)	269 (85.9%)	
<i>Age</i>	<30	102 (29.9%)	30 (9.6%)	52.59***
	30-39	64 (18.8%)	45 (14.4%)	
	40-49	86 (25.2%)	117 (37.4%)	
	50-59	60 (17.6%)	91 (29.1%)	
	$\geq 60$	29 (8.5%)	30 (9.6%)	
<i>Occupation</i>	Registered nurses	262(76.8%)	307 (92.2%)	12.65***
	Nursing aides	79 (23.2%)	26 (7.8%)	

Note: significant at .001\*\*\*, .01\*\*, .05\*; n.s.=not significant;  $\chi^2$ =chi-squared.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49

Table 2. Univariate analyses between study variables within and between subsamples.

	U.S. sample				Italian sample				U.S. sample	Italian sample	t-test
	1	2	3	4	1	2	3	4	M (SD)	M (SD)	
1. Organizational efficiency	1				1				2.77 (.60)	2.71 (.71)	-1.17(n.s.)
2. Workload	-.44***	1			-.34***	1			2.22 (.73)	2.58 (.59)	7.01***
3.Co-worker incivility (CWI)	-.28***	.30***	1		-.28***	.21***	1		1.91 (.73)	1.66 (.68)	4.55***
4. Intention to leave	-.39***	.41***	.33***	1	-.23***	.16**	.29***	1	2.92 (1.28)	1.91 (.73)	-12.25***

Note: significant at .001\*\*\*, .01\*\*, .05\*; n.s.=not significant; M=mean; SD=standard deviation.

Table 3. Multi-sample structural equation models (MS-SEM): Goodness-of-fit indexes.

	$\chi^2$ (df)	$\chi^2$ /df	CFI	TLI	SMRM	RMSEA
a) Unconstrained model: all parameters are freely estimated	166.45(98)	1.70	.975	.97	.04	.03 [.02-.04]
b) Constrained factor loadings ( $\lambda$ )	216.99(106)	2.05	.959	.95	.05	.04 [.03-.05]
c) Constrained regressed paths ( $\beta$ )	314.32(104)	3.02	.923	.90	.10	.05 [.05-.06]
d) Partially constrained regressed paths ( $\beta$ )	174.33(101)	1.72	.973	.96	.05	.03 [.02-.04]
e) Partially constrained regressed paths ( $\beta$ ) + control variables	301.35(155)	1.94	.955	.93	.05	.04 [.03-.04]

$\chi^2$ =chi-squared; df=degree of freedom; CFI=Comparative Fit Index; TLI=Tucker-Lewis Index; SRMR= Standardized Root Mean Square Residual;

RMSEA= Root Mean Square Error of Approximation;  $\lambda$ =lambda, standardized factor loading;  $\beta$ =standardized regressed path.



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49

Table 4. Regressed coefficient paths in the final model (e).

Path	U.S. sample		Italian sample		Hypotheses
	$\beta$	p	$\beta$	p	
Organizational efficiency-> co-worker incivility (CWI)	<i>-.28</i>	<i>.001</i>	<i>-.24</i>	<i>.001</i>	H1
Organizational efficiency-> workload	<i>-.53</i>	<i>.001</i>	<i>-.38</i>	<i>.001</i>	H2
Workload-> co-worker incivility (CWI)	<i>.24</i>	<i>.002</i>	<i>.13</i>	<i>.061</i>	H3
Co-worker incivility (CWI)-> intention to leave	<i>.13</i>	<i>.001</i>	<i>.27</i>	<i>.001</i>	H4
Workload->intention to leave	<i>.36</i>	<i>.001</i>	<i>.02</i>	<i>.774</i>	H5
Organizational efficiency->intention to leave	<i>-.12</i>	<i>.001</i>	<i>-.23</i>	<i>.001</i>	H6

Note 1. Italic indicates significant paths;  $\beta$ =standardized path coefficient; p=probability value.

Note 2. Model was controlled for age, gender, and type of occupation. Significant path(s) in the U.S. subsample: Age->workload ( $\beta$  =-.22, p=.001); type of occupation (1=nurse aides)->organizational efficiency ( $\beta$  =.14, p=.021). Significant path(s) in the Italian subsample: Age->organizational efficiency ( $\beta$  =.14, p=.021).

Table 5. Indirect effect estimated by means of bootstrap test.

	U.S. sample				Italian sample			
	Standardized Indirect effect	Confidence Interval		p	Standardized Indirect effect	Confidence Interval		p
		upper bound	lower bound			upper bound	lower bound	
Organizational efficiency -> incivility (Ha)	<i>-.13</i>	<i>-.06</i>	<i>-.21</i>	<i>.01</i>	<i>-.05</i>	<i>.01</i>	<i>-.12</i>	<i>.15</i>
Efficiency ->intention to leave (Hb)	<i>-.24</i>	<i>-.17</i>	<i>-.31</i>	<i>.01</i>	<i>-.09</i>	<i>-.04</i>	<i>-.14</i>	<i>.01</i>
Workload -> intention to leave (Hc)	<i>.03</i>	<i>.06</i>	<i>.01</i>	<i>.01</i>	<i>-.04</i>	<i>.01</i>	<i>-.08</i>	<i>.15</i>

Note. Italic indicates significant indirect effects; p=probability value.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

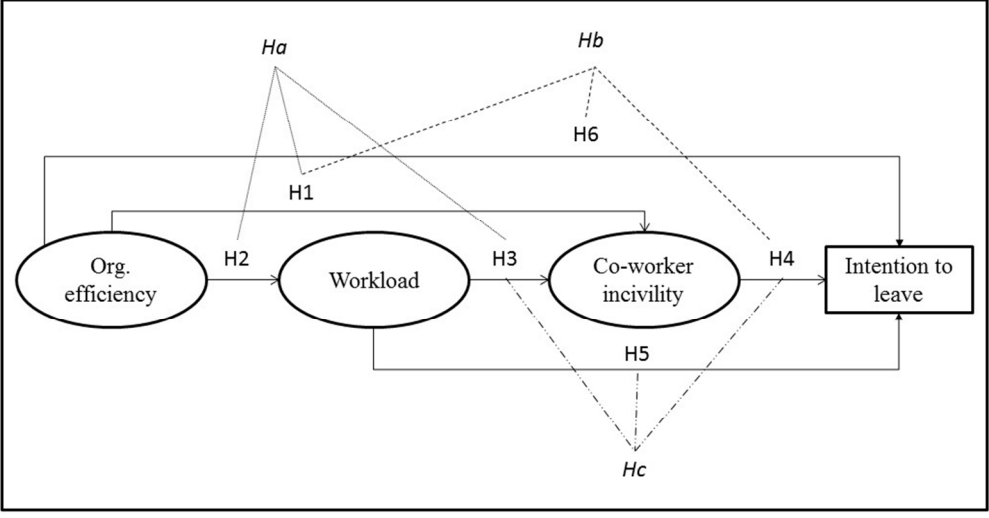
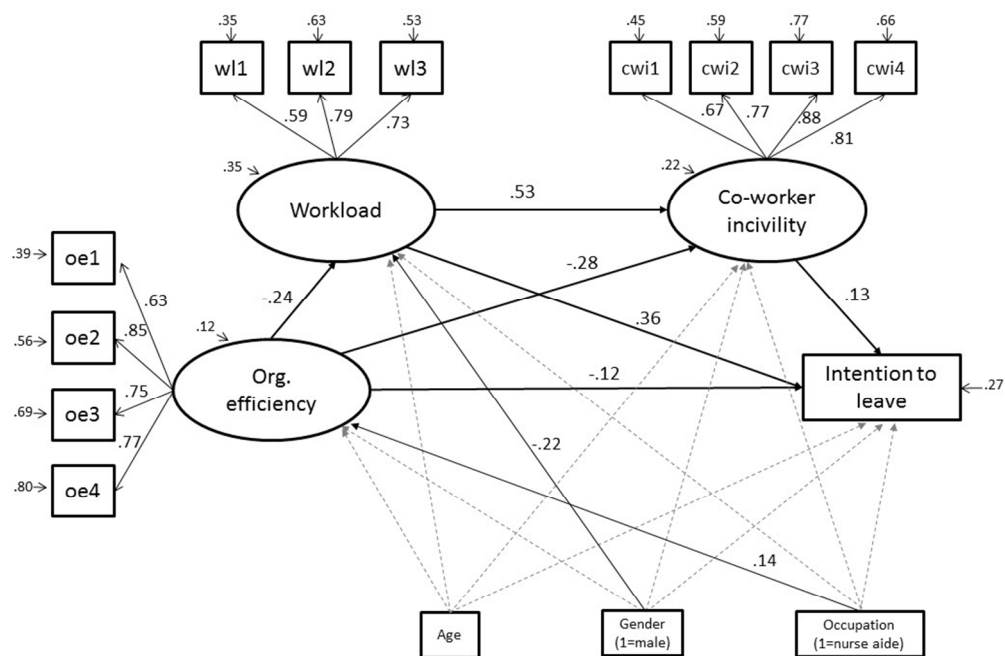


Figure 1. Graphical representation of the study hypotheses.

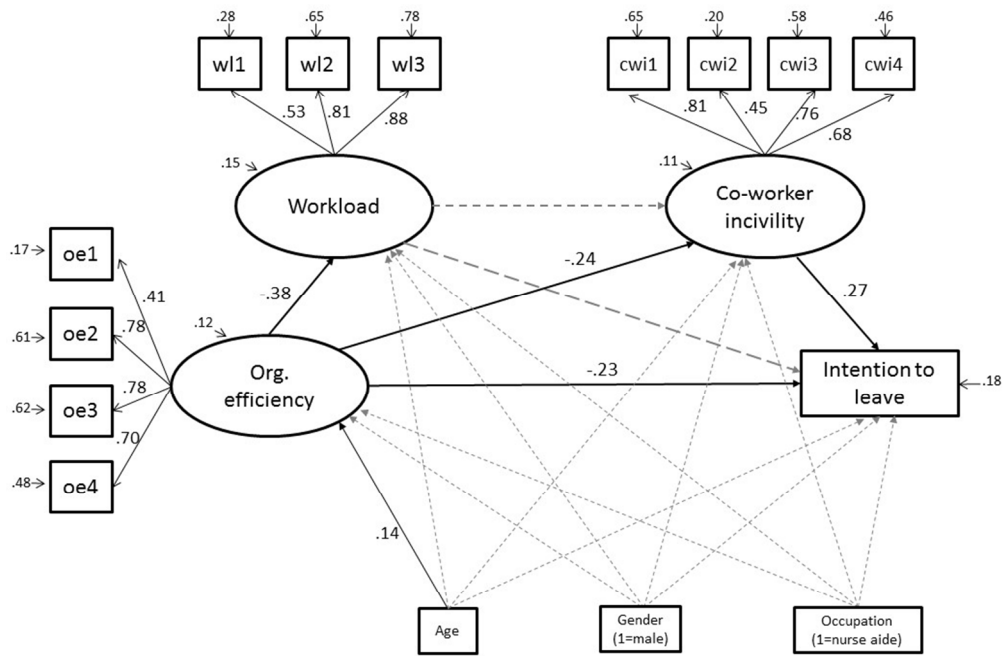
274x190mm (96 x 96 DPI)



Appendix 1. Graphical representation of the final model in the US sample. Dash line arrows indicate non-significant paths.

274x190mm (96 x 96 DPI)

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60



Appendix 2. Graphical representation of the final model in the Italian sample. Dash line arrows indicate non-significant paths.

274x190mm (96 x 96 DPI)