

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

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3 **Organizational efficiency and co-worker incivility: A cross-national study of nurses in**
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5 **the U.S. and Italy**
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7 **Abstract**
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10 **Aim.** To examine the relationship of co-worker incivility (CWI) with organizational
11 efficiency, workload and intention to leave in nursing samples from two different countries,
12 the U.S. and Italy.
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17 **Background.** Organizational efficiency has received little attention as a possible
18 correlate of CWI in the nursing management literature. Studies on CWI have primarily been
19 carried out in North America and no cross-national studies are available.
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24 **Method.** Data were collected by a self-report questionnaire involving **nurses** from the
25 U.S. (n=341) and Italy (n=313).
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30 **Findings.** Organizational efficiency was negatively associated with workload, CWI,
31 and intention to leave in both samples. The path from CWI to intention to leave was also
32 positive and significant in both samples. Workload was positively associated with CWI and
33 intention to leave in the U.S. sample, but not in the Italian sample.
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40 **Conclusion.** The present study suggests that organizational efficiency is central to
41 understanding both CWI and intention to leave among nurses.
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45 **Implications for Nursing Management.** Nurse administrators should adopt
46 interventions aimed at fostering organizational efficiency in an effort to reduce nurse CWI.
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50 **Keywords:** Co-worker incivility, Organizational efficiency, Workload, Intention to
51 leave, Conservation of Resource theory, Cross-national study.
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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 & Stanley (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.

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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.
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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.
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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.
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22 *The relationship of organizational efficiency with CWI*

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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.
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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
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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
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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).
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14 Based on this, we propose that:

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

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18 *The relationship of workload with CWI*
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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.
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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).
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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
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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
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7 *Ha*, in addition to H1, this study will also examine the following hypotheses (Figure 1):
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10 **H2:** Efficiency is negatively associated with workload.

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

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

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16 A work environment characterized by poor efficiency, high workload, and CWI may
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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).
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30 The predictive roles of CWI and workload on intention to leave were widely
31
32 supported in studies carried out in many working settings, including nursing (e.g., Laschinger
33
34 et al. 2009). Accordingly, we hypothesized:
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37 **H4:** CWI is positively associated with intention to leave.

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

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41 Although there are no studies specifically focused on the association between
42
43 efficiency and intention to leave, many studies demonstrated that the quality of the
44
45 organizational processes affects worker attitudes toward the job, including intention to leave
46
47 (Hayes et al. 2006). Hence, we hypothesized:
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50 **H6:** Efficiency is negatively associated with intention to leave.

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52 Despite their consistency with the principle of the loss spiral and the presence of
53
54 empirical evidence that suggests their plausibility, no studies examined whether CWI
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56 mediated the effect of efficiency (*Hb*) and workload (*Hc*), respectively, on intention to leave.
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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).
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7 8 *Testing for cross-national invariance*

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10 CWI prevalence rates considerably vary across cultures (Schilpzand et al. 2016).
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12 Empirical evidence indicated that U.S. nurses are significantly more exposed than Italian
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14 nurses to CWI (U.S. about 80%, e.g., Lewis and Malecha (2011); vs. Italy: about 40%, e.g.,
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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
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38 knowledge may help nurse administrators identify measures to prevent and manage CWI,
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40 while considering possible culture-based characteristics.
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46 Given the absence of previous cross-cultural studies on CWI, statements on
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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

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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

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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
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29 Investigation Committee of the University and the Research Review Council of the hospital
30
31 system.
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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
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3 4 =“strongly disagree” (e.g., “[At my workplace] Resources are optimally utilized;” $\alpha_{US}=.75$;
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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 ($\alpha>.80$)
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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

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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
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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).

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49 Preliminary analyses included t-tests and Pearson’s correlations to examine univariate
50
51 relationships among study variables.
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54 Multi-Sample Structural Equation Modelling (MS-SEM) was employed to
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56 simultaneously analyze data from two national samples to assess invariance of paths across
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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).
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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 (λ)¹
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 (β) were equality constrained across groups
17 ($\beta_{US}=\beta_{ITA}$).
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27 The goodness of fit of models were evaluated using the ratio of chi-square to the
28 degrees of freedom (χ^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 χ^2/df is ≤ 3 , CFI and TLI are $\geq .95$, SRMR and RMSEA are $\leq .08$.
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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.
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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
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56 ¹ In reporting SEM findings, we followed the convention to refer to the standardized factor loading values using
57 the lambda (λ) Greek letter. (Byrne 2013). Similarly, the beta (β) Greek letter was use to refer to the
58 standardized path coefficients (see above in the text).
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3 minimize the risk to incur Type I error, the use of SEM with the bootstrapping procedure
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5 requires a sample size ≥ 200 .
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8 **Results**

9 *Descriptive analyses*

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12 Table 1 reports socio-demographic data in the two national samples. According to χ^2
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14 tests, age class distribution significantly differed across subsamples (younger classes were
15
16 more numerous in the U.S. sample), whereas the Italian sample included more nurses than the
17
18 U.S. sample (Italy=92.2%; U.S.=76.8%).
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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.
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40 *Hypothesis testing*

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42
43 The structural model (i.e., MS-SEM) used to test our hypotheses was developed by
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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 ± 2), Maximum Likelihood, was employed as an estimation method.
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55 In a first step, the hypothesized model was tested across the subsamples, without
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57 imposing any equality constraints. The model fit was satisfactory (Table 3, *a*). Hence, a more
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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 ($>.002$)
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9 between this and the unconstrained model (*a*) was observed, indicating that factor loadings
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11 were not invariant across the U.S. and the Italian subsamples.
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15 Next, the invariance of the regression paths across groups was tested (Table 3, *c*,
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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 χ^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
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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
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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),
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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
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49 analogous to those obtained in the non-controlled model (in terms of directions and
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51 significance). Whereas in the U.S. subsample all the regressed paths were found to be
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53 significant and in the expected direction, in the Italian subsample the paths from workload to
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3 CWI and from workload to intention to leave did not show significant associations (Table 4).
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5 These results suggested accepting H1, H2, H4, H6 in both subsamples. However, invariance
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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
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41 the Italian sample.
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46 On the other hand, different mechanisms were highlighted regarding workload across
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48 the two national samples. In the U.S. sample, workload was found to contribute to shape the
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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
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56 given considering the macro socio-economic context in each nation. Regarding the
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3 relationship between workload and intention to leave, it is important to consider that in Italy,
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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).
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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
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48 excessive, workers may use CWI as a "strategy" (even though dysfunctional) to push other
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50 co-workers in getting the job done.
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55 However, the present study suggests that the role of workload in loss spiral needs to
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57 be further explored. In particular, since previous studies suggested that job demands -even if
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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*

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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*

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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
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55 to prevent CWI and intention to leave (Mikaelian & Stanley 2016) by contributing to
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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
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7 efficient work environment. Such training would also enable **managers** to enhance the sharing
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9 of work goals, to foster the quality of communication between nurses, and optimize
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11 utilization of job resources in the unit.
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15 Moreover, our finding suggest that reflective practice group (Knight 2015) may
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17 represent a useful tool to sustain both the quality of the work process and relationships among
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19 co-workers. Reflective practice group is a technique that provides an opportunity for a work
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21 team to collectively examine the daily practice and learn through and from experience, with
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23 the end to identify shared visions regarding ways to improve the working processes. It is a
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25 technique widely used in the nursing context, but so far, not specifically considered to
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27 address work efficiency and CWI.
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31 Finally, other types of interventions aimed at improving the organizational process
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33 may help to reduce CWI as well. For example, regularly scheduling meetings among unit
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35 members specifically aimed at organizing work activities and sharing objectives may be
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37 beneficial (**Mikaelian & Stanley 2016**). In addition, employing participative systems to make
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39 decisions both at unit and at an organizational level may reinforce the quality of the process
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41 and thus the quality of the relationships among co-workers (**Laschinger et al. 2012**).
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31 Figure 1. Graphical representation of the study hypotheses.

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

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

Table 1. Background variables

		U.S. sample	Italian sample	χ^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%)	
	≥ 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; χ^2 =chi-squared.

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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.

	χ^2 (df)	χ^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 (λ)	216.99(106)	2.05	.959	.95	.05	.04 [.03-.05]
c) Constrained regressed paths (β)	314.32(104)	3.02	.923	.90	.10	.05 [.05-.06]
d) Partially constrained regressed paths (β)	174.33(101)	1.72	.973	.96	.05	.03 [.02-.04]
e) Partially constrained regressed paths (β) + control variables	301.35(155)	1.94	.955	.93	.05	.04 [.03-.04]

χ^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; λ =lambda, standardized factor loading; β =standardized regressed path.

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

Path	U.S. sample		Italian sample		Hypotheses
	β	p	β	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; β =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.

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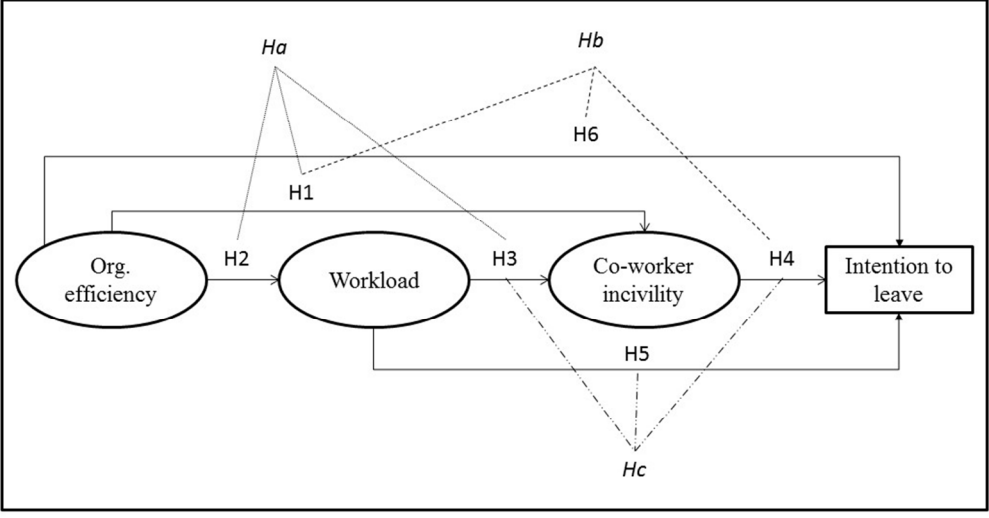
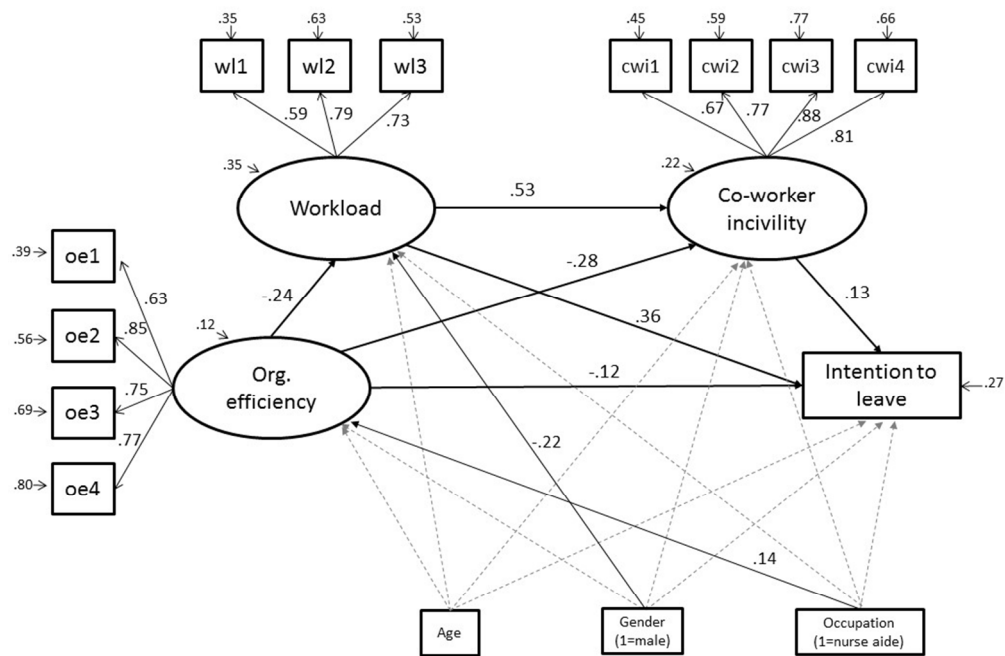


Figure 1. Graphical representation of the study hypotheses.

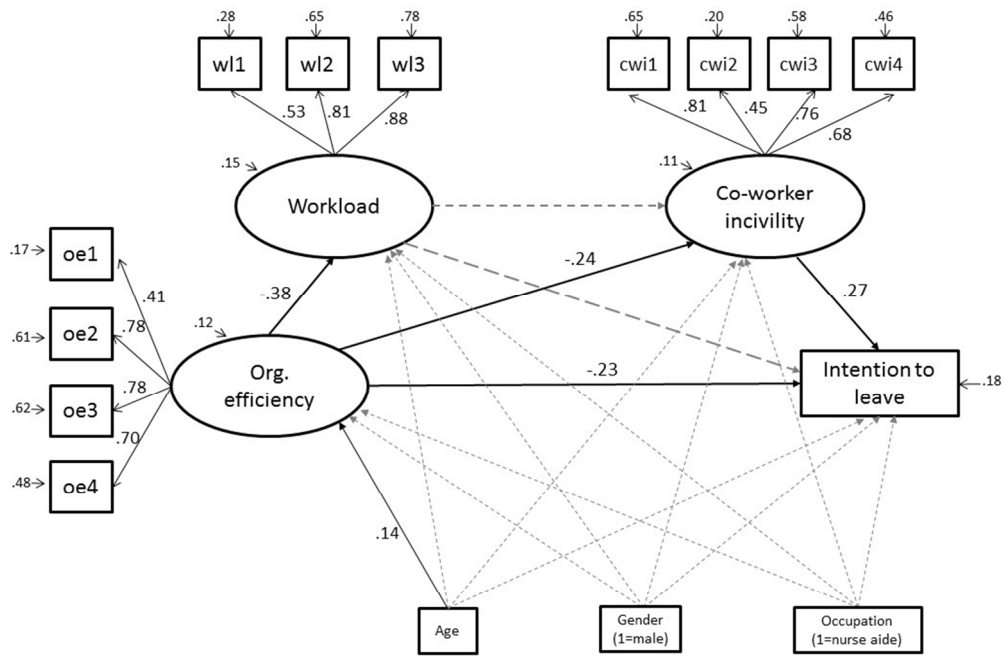
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Appendix 1. Graphical representation of the final model in the US sample. Dash line arrows indicate non-significant paths.

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

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