

*This is the peer reviewed version of the following article:*

- Fiorini, L.A., Houdmont, J., & Griffiths, A. (2020). Nurses' perceived work performance and health during presenteeism: Cross-sectional associations with personal and organisational factors. *Journal of Nursing Management*, 00, 1–9  
DOI: [10.1111/jonm.13065](https://doi.org/10.1111/jonm.13065)

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## **Correlates of nurses' perceived work performance and health during presenteeism: a cross-sectional study**

**Luke Anthony FIORINI, Amanda GRIFFITHS, Jonathan HOUDMONT**

### **Abstract:**

**Aim:** To determine the correlates of perceived work performance and illness outcomes during presenteeism in a cohort of nurses.

**Background:** Presenteeism is prevalent in nursing populations. It is known to be associated with impaired health and performance loss. Knowledge about the correlates of presenteeism may help foster better health and performance in this group.

**Methods:** A survey ( $N = 270$ ) was conducted in a population of nurses working with older adults. The correlates of performance loss were investigated via hierarchical multiple linear regression. Hierarchical multiple logistic regression was used to analyse the correlates of illness outcomes during presenteeism.

**Results:** Work performance and illness outcomes were often reported as poor during presenteeism. Less negative illness perceptions and work engagement were associated with better work performance and illness outcomes. Older age and manager support were also associated with better work performance. Non-organisational causes of illness were associated with better illness outcomes.

**Conclusion:** Performance levels and illness outcomes during presenteeism are associated with a combination of illness-related, attitudinal, personal and organisational factors.

**Implications for nursing management:** Ill nurses should be encouraged to take sick leave. Engagement, support, good relationships and a hazard-free environment should be fostered to improve performance and health during presenteeism.

**Key words:** presenteeism, nurses, performance, health, consequence

## 1. Introduction

Presenteeism, whereby individuals attend work ill, is endemic in populations of nurses (Aronsson, Gustafsson, & Dallner, 2000; Schneider, Winter, & Schreyögg, 2018), and several studies having explored its antecedents (Brborović, Daka, & Brborović, 2017; Fiorini, Griffiths, & Houdmont, 2018; Rainbow, 2019). Amongst the factors that influence nurses' presenteeism decisions are their concerns about the impact of such episodes on their work performance and on their health. Nurses are more likely to attend ill when the impact on work performance and health is perceived to be low, or when being present at work is actually considered to be beneficial to health (Fiorini et al., 2018). The factors that moderate these consequences, however, have attracted limited research in nurses.

In terms of performance, presenteeism has been linked with a reduced incidence of near-miss reporting (Halbesleben, Wakefield, Wakefield, & Cooper, 2008), increased patient falls and with medication errors, lower quality of care (Letvak, Ruhm, & Gupta, 2012), and restricted patient treatment and assistance (Dhaini et al., 2017). However, the degree of performance loss varies between studies (Islam, Baker, Huxley, Russell, & Dennis, 2017; Laranjeira, 2013).

Studies of the antecedents of presenteeism-related performance loss in nurses are limited but have been shown to be related to age (Letvak & Buck, 2008), seniority (Martinez & Ferreira, 2012) and the type of health problem experienced (Letvak & Buck, 2008; Martinez & Ferreira, 2012; Skela-Savič, Pesjak, & Hvalič-Touzery, 2017).

Various psychosocial and organisational factors have also been linked with work performance decrements during episodes of presenteeism. These include, a lack of lifting devices, job dissatisfaction (Skela-Savič et al., 2017), job stress (Brborović, Brborović, & Mustajbegovic, 2016; Letvak & Buck, 2008), negative affect, emotional exhaustion, and reduced engagement (Ferreira, Ferreira, Cooper, & Oliveira, 2019). Such findings might indicate that organisational factors such as job demands and resources, such as support, may influence performance loss during presenteeism in nurses. Findings from non-nursing studies highlight their influence in this respect (Van den Heuvel, Geuskens, Hooftman, Koppes, & van den Bossche, 2010). Finally, working in nursing homes, rather than residential homes has also been related with greater performance loss during presenteeism (Islam et al., 2017).

The impact of presenteeism on nurses' health has received little attention. Rainbow (2019) highlighted that nurses viewed presenteeism as having a negative impact upon their health, although contradictory findings have also been reported (Fiorini et al., 2018). Demerouti, Le Blanc, Bakker, Schaufeli, and Hox (2009) highlighted the interaction between presenteeism and exhaustion in nurses. Furthermore, a study of healthcare workers that included nurses linked presenteeism with poor health, burnout and sick-leave (Dellve, Hadzibajramovic, &

Ahlborg, 2011). As presenteeism is so prevalent, nurses and nursing managers would benefit from an understanding of the factors that influence illness outcomes during such episodes in order to foster a healthier workforce. The correlates of presenteeism-related illness outcomes do not however appear to have been previously studied. More generally, studies of nursing health have highlighted this can be impacted by physical, psychosocial and organisational factors (Bos, Krol, van der Star, & Groothoff, 2007; Lambert, Lambert, Petrini, Li, & Zhang, 2007)

In conclusion, whilst performance loss has frequently been reported during presenteeism, studies of the levels of performance loss in nurses and its correlates are few and inconclusive. Furthermore, factors associated with the impact of presenteeism on illness outcomes are yet to be studied. In both cases, it appears possible that a combination of illness-related factors, individual factors, attitudinal factors, and organisational factors may be influential.

## **2. Aims**

The study aimed to:

- (a) Determine the perceived impact of presenteeism on performance and health in a sample of nurses.
- (b) Identify if individual factors, health and illness-related factors, and attitudinal and organisational factors correlate with work performance and illness outcomes during presenteeism.

## **3. Methods**

The investigation was conducted in two public medical facilities that specialised in care of the elderly in Malta. The total population included 410 ward-based nurses, 74 of which were charge or deputy-charge nurses (nurses with ward-based management duties).

A paper-based questionnaire was distributed to on-duty nurses. A total of 321 nurses and charge nurses were contacted and invited to participate in the study, of which 283 (88%) returned questionnaires. Thirteen questionnaires had a large amount of missing data (>50%) and were not analysed. All the remaining questionnaires were either complete or had small amounts of missing data. For small amounts of missing information mean substitution was applied. It is suggested that this method is only used when data is missing completely at random and less than 10% of the data are missing (Donner, 1982); both these criteria were met. Analysis was conducted on 270 cases (66% of the total population).

The study received ethical approval from the Research Ethics Committee of the Faculty of XX XX XX XX, University of XXXXX.

### **3.1 Measures**

Following a review of the literature and exploratory discussions with nurses about the consequences of presenteeism and the factors that may influence them, a questionnaire was prepared. These fell into one of three categories: individual factors, health and illness-related factors, and attitudinal and organisational factors (Figure 1). When identifying measurement instruments, priority was given to those used extensively in the presenteeism literature. For each of the multi-measurement scales presented below, Cronbach's Alpha coefficient scores were calculated; alpha coefficients  $\geq .60$  were considered acceptable, with alphas  $> .70$  desirable (Taber, 2017). The questionnaire was piloted among a group of healthcare workers who were not part of the study population ( $n = 7$ ).

INSERT FIGURE 1 HERE

### **3.1.1 Performance loss during presenteeism**

This was measured via the Stanford Presenteeism Scale (SPS-6) (Koopman et al., 2002) that includes six items (e.g., "Despite having my health problem, I was able to finish hard tasks in my work") scored on a 5-point Likert scale ranging from strongly agree (1) to strongly disagree (5). Three questions are reverse scored, and overall scores can range from 6-30, with higher scores indicating better performance. The scale was used to retrospectively measure performance loss during participants' last illness episode. Participants were informed that illness episodes could refer to both physical (e.g., colds, pain) and psychological illnesses (e.g., depression). The SPS-6 has good psychometric properties (Ospina, Dennett, Waye, Jacobs, & Thompson, 2015). In the present study, a Cronbach's alpha of 0.67 was obtained.

### **3.1.2 Perceived impact of presenteeism on last illness episode**

This does not appear to have been previously studied. An outcome measure was thus devised: "what impact did attending work when ill have on your illness?" The question was measured on a five-point scale: very harmful (1); harmful (2); no effect (3); beneficial (4); very beneficial (5).

### **3.1.3 Overall health**

A question from the Short Form-36 (Ware & Sherbourne, 1992) was used, "in general I would say my health is" poor (1) to excellent (5).

### **3.1.4 Illness perceptions during presenteeism**

Participants were asked to recall how they had appraised their illness during their last presenteeism episode. This was measured using items from the Brief Illness Perception Questionnaire (B-IPQ) (Broadbent et al., 2006). Five questions measure participants' cognitive perceptions, whilst two measured emotional perceptions. All questions involved an eleven-point response scale (0-10), with some questions reverse coded. A single score was

obtained by calculating the average score of the cognitive and emotional representations ( $\alpha = .72$ ). Higher scores indicated more negative illness appraisals, characterised by more symptoms, longer lasting illness, greater consequences, greater concerns, more negative emotions, and poorer personal control. The B-IPQ has been used extensively in published studies and has good psychometric properties (Broadbent et al., 2015).

### **3.1.5 Cause of illness during presenteeism**

The B-IPQ also contains an open-ended question on the perceived causes of illness, to be listed in order of importance. This was completed for participants' last presenteeism episode. Causes were categorised as organisational (1) (e.g., lifting and handling) or unrelated to work (2) (e.g., low immunity).

### **3.1.6 Work engagement**

Engagement, a positive occupational state of mind, was measured via the nine item Utrecht Work Engagement Scale (UWES-9) (Schaufeli & Bakker, 2003). The tool includes questions which measure three aspects of engagement; vigour, dedication, and absorption, and has been shown to be reliable and valid (Schaufeli & Bakker, 2003). Examples of the items include: "At my work, I feel bursting with energy" and "I feel happy when I am working intensely". The tool uses a seven-point scale ranging from never (0) to always (6). A mean score of the nine questions was calculated, higher scores indicating higher levels of engagement ( $\alpha = .88$ ).

### **3.1.7 Emotional exhaustion**

This was measured via a single statement, "I feel burnt out from my work" and was scored on six-point scale ranging from never (1) to every day (6). This item originates from the Maslach Burnout Inventory (MBI) (Maslach et al., 1996) and has the highest factor loading for emotional exhaustion (West, Dyrbye, Satele, Sloan, & Shanafelt, 2012).

### **3.1.8 Work demands, peer support, managerial support, and work relationships**

These factors were measured via the Management Standards Indicator Tool (MSIT) (HSE, n.d.), the reliability and validity of which has been previously reported (Cousins et al., 2004). Work demands ( $\alpha = .60$ ), which included questions on factors such as workload, deadlines, breaks and pressure, were scored on an eight item, five-point scale, which ranged from never (1) to always (5); the four item peer support ( $\alpha = .81$ ) domain and the five item management support ( $\alpha = .80$ ) domain were scored on five-point scales which either ranged from never (1) to always (5), or from strongly disagree (1) to strongly agree (5). Peer support included questions regarding whether colleagues provide help, support and respect. Managerial support, referred to aspects including the provision of feedback, help, emotional support and encouragement; The four item relationship domain ( $\alpha = .60$ ), which included items on harassment, bullying, anger between colleagues, and strained relationships was scored on scales that either ranged from never (5) to always (1), or strongly disagree (5) to strongly

agree (1). Higher scores indicated greater work demands, better levels of support and better relationships.

### **3.1.9 Demographics**

Information on the following were collected: Age, gender (Male [1], Female [2]), and grade (nurse [1], charge or deputy charge nurse [2]).

## **3.2 Analysis**

Data were analysed using IBM SPSS Statistics 25. Significant associations ( $p < 0.05$ ) were first identified between the outcome measures and the other measured variables. In the case of performance loss during presenteeism, Pearson product-moment correlation was used for scale variables and Pearson's point-biserial correlations was used for dichotomous independent variables.

In the case of the perceived impact of presenteeism on illness, the outcome variable was transformed into a dichotomous variable (harmful and very harmful = 1; no effect, beneficial and very beneficial = 2) due to its skew (Skew = 1.43). Pearson's point-biserial correlations were then conducted to identify significant associations. When the independent variable was also dichotomous, Phi was used to identify such relationships.

A hierarchical multiple linear regression model was used to investigate the associations between the perceived levels of performance during presenteeism and the other variables of interest. Associations with the perceived impact of presenteeism on illness were investigated via hierarchical logistic regression. Hierarchical multiple regression was chosen as it allows one to understand the relationship between a dependent variable and a set of independent variables, whilst also demonstrating how the addition of variables improves on the association of other variables (Leech, Barrett, & Morgan, 2015). In each case, and in line with the proposed model (Figure 1) variables were added in three stages, demographic control variables, which also reflected individual factors, were first entered, followed by health and illness-related factors. Finally, organisational and attitudinal factors were entered. As better regressions contain fewer independent variables, the regressions were constructed in two steps: (a) only variables that were significantly correlated with the outcome variables in bivariate analysis were entered into the model ( $p < .05$ ); and (b) variables which did not contribute significantly to the regression were then removed. An exception was made for demographic control variables; these were entered into each regression and retained, even when not significantly associated. Since many variable combinations were possible, that which produced the highest  $R^2$  is presented (Field, 2005).

## **4 Results**

Of the 270 cases analysed, 194 (72%) were female and 76 (28%) male, with a mean age of 38.4 (SD = 12.9). In terms of grade, 209 were ward-based staff nurses (77%), whilst 61 (23%) were ward-based charge or deputy-charge nurses.

#### 4.1 Performance loss during presenteeism

A mean SPS-6 score of 17.50 (SD = 4.22) was obtained. Bivariate correlations (Table 1) revealed that variables from all three categories of factors were significantly associated with perceived performance loss during presenteeism.

INSERT TABLE 1 HERE

Hierarchical multiple linear regression (Table 2) revealed that age ( $\beta = .18, p = .008$ ) was the only demographic variable to contribute to the final model. Less negative perceptions of illness were also associated with better performance ( $\beta = -.16, p = .008$ ). Finally, better performance was linked with greater engagement ( $\beta = .18, p = .004$ ) and support from supervisors ( $\beta = .13, p = .033$ ). The final model explained 14% of the variance ( $F(6, 263) = 8.23, p < .001$ ).

INSERT TABLE 2 HERE

#### 4.2 Perceived impact of presenteeism on illness

4 participants (1.5%) rated presenteeism as very beneficial, 8 (3%) as beneficial, 56 as having no effect on illness (21%), 187 (69.3%) as harmful, and 15 (5.6%) as very harmful.

Bivariate analysis (Table 1) highlighted that whilst health and illness-related factors, as well as attitudinal and organisational factors were significantly associated with the perceived impact of presenteeism on illness, none of the studied variables categorised as individual factors were.

Hierarchical logistic regression (Table 3) revealed that compared to those who reported harmful presenteeism episodes, harmless or beneficial presenteeism episodes were 19% less likely (OR = 0.82; 95% CI 0.69-0.97) when individuals experienced more negative illness perceptions, 2.02 times more likely when illness was attributed to non-organisational factors (95% CI 1.08-3.77), and 1.49 times (95% CI 1.07-2.07) more likely when experiencing greater engagement. A pseudo Cox and Snell score suggested that the final model explained 7% of the variance.

INSERT TABLE 3 HERE

### 5. Discussion

The current study determined that presenteeism was often perceived as harmful to illness and to impact work performance negatively. Several factors were found to correlate with work performance and illness outcomes. Neutral or beneficial illness outcomes were associated with less negative illness perceptions, greater engagement, and managerial support. Better work performance was linked with less negative illness perceptions, non-organisational causes of illness, greater engagement, and older age. Overall, results indicated that a combination of illness-related, organisational, attitudinal and individual factors were linked with the outcome variables. This also suggests that holistic approaches are necessary to understand the consequences of presenteeism.

Presenteeism has previously been linked with decrements in work performance (Letvak et al., 2012). The obtained mean SPS-6 score of 17.5 is meaningful; scores of 18 or lower are indicative that performance and focus has been substantially affected by illness (Foster, 2002). It is also lower than the mean score reported in several other nursing studies (Islam et al., 2017; Martinez & Ferreira, 2012; Skela-Savič et al., 2017). Reductions in performance have been linked with notable consequences, such as patient falls, errors and poorer levels of care (Letvak et al., 2012), the finding is therefore cause for concern. The current study also highlighted that 75% of participants felt that their last presenteeism episode was harmful for their health. This mirrors previous findings (Dellve et al. 2011; Rainbow, 2019), but also indicates that presenteeism is not always viewed negatively in respect to health.

Less negative illness perceptions were linked with both better performance and more beneficial illness episodes during presenteeism. Their contribution to both regressions highlights the importance of nurses' appraisal of their illnesses, which have often been overlooked in previous studies. The finding appears logical; illness considered more serious, chronic, less controllable and more concerning is unlikely to aid performance and is unlikely to benefit from strenuous work. Such factors have previously been reported to discourage presenteeism in nurses (Fiorini et al., 2018). Furthermore, a study of individuals with inflammatory bowel disease found that those with greater illness concern also reported greater performance decrements (van der Have et al., 2015).

Attributing the cause of illness to organisational factors was also linked with poorer illness outcomes during presenteeism. The findings appear novel in the presenteeism literature. Ongoing exposure to unhealthy workplace factors would not foster recovery. In fact, the return-to-work literature has previously highlighted that poor occupational environments make it harder for absent workers with chronic illnesses to return to work and remain at work (Pomaki et al., 2010).

The relevance of organisational factors was further highlighted from the finding that manager support was associated with improved performance during illness. On average, levels of manager support were not low in the studied sample, but were lower than other organisational factors, such as peer support and workplace relationships. The association between managerial support and improved performance may be due to the motivational potential of such support (Bakker & Bal, 2010). It is also notable that managerial support appears to be more relevant than peer support. This may be due to supervisors' ability to delegate assistance and modify tasks, making them more manageable during periods of illness. In fact, reduced job stress has previously been linked with better performance during presenteeism (Brborović et al., 2016; Letvak & Buck, 2008).



Apart from illness perceptions, work engagement was the only other factor to contribute to both presented regressions. This highlights the potential impact of nurses' work-related attitudes in influencing both their work performance and illness outcomes. Engaged individuals were better performers and reported more beneficial presenteeism episodes. Greater engagement has previously been associated with better healthcare outcomes including reduced infection, reduced patient mortality and improved client satisfaction (West & Dawson, 2012). It has also been associated with better performance during presenteeism in nurses (Ferreira et al., 2019). Engaged healthcare workers also have better levels of health (Fiabane, Giorgi, Sguazzin, & Argentero 2013), and the current finding adds to this. Engaged workers can create their own resources (Bakker & Bal, 2010), such as seeking support and creating better work relationships, and this may have aided the studied workers to cope with work and have better illness outcomes.

Older participants performed better during presenteeism. Mixed results have previously been reported in this respect (Aysun & Bayram, 2017; Letvak & Buck, 2008). Older nurses were more likely to be charge nurses, who also had better levels of performance. Such nurses often had tasks which were less physically taxing and this may have made it easier to cope when experiencing certain illnesses, such as musculoskeletal disorders. It is also possible that the added levels of experience associated with age aided coping.

### **5.1 Limitations:**

Some of the variables used were single-item measures. The study was also cross-sectional in nature, and the method of recruitment may have excluded individuals who were on sick leave. The design of the study and the method of recruitment, however, may have boosted participation.

Whilst several independent variables were studied, both regressions indicated that much variance remained unexplained. This may have been influenced by the study's sample size and by the reliability scores of some of the studied variables, including that of the SPS-6. However, it may also indicate that other relevant variables were omitted from the current study, highlighting the need for further future studies.

### **6 Conclusion:**

Nurses attending work whilst ill often reported reduced levels of performance and felt that presenteeism was harmful for their illness. The degree of performance loss, and the perceived impact of presenteeism on illness were associated with several factors. Less negative illness perceptions, non-organisational causes of illness and greater levels of engagement were associated with more beneficial presenteeism episodes. Older age, less negative illness perceptions, greater engagement and management support were linked with reduced performance decrements. The findings suggest that illness perceptions, occupational attitudes, personal and organisational factors may all play a role in influencing the actual consequences of presenteeism.

## 7 Implications for nursing management

The study highlights the utility of approaching the consequences of presenteeism holistically.

Nurses' perceptions of their illness appear highly relevant. Nurses who perceive their condition to be poor should be encouraged to avoid work when feeling unwell. In the current study, poorer illness perceptions were linked with both poor performance and more harmful illness implications during presenteeism. Such a situation may be risky to both the patients, who may receive substandard care, to the nurses themselves, who would be less likely to recover. In consequence, the organisation would have to deal with the resulting implications, such as future absenteeism, turnover, and possibly litigation.

Conversely, the benefits of engagement and manager support were apparent and nursing managers should aim to foster these. Higher levels of co-worker and managerial support have previously been associated with improved levels of engagement in nurses (Vera, Martínez, Lorente, & Chambel, 2016). Other factors that could aid in developing engagement at work include ensuring that nurses have realistic workloads, are rewarded and recognised for their achievements, feel that they are treated fairly, and that conflict between nurses is prevented (Freeney & Tiernan, 2009). Some degree of presenteeism is likely to be inevitable, but if a healthy workplace is fostered, the negative short and long-term impact of such episodes can be minimised.

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Table 1. Descriptive statistics and correlations between performance during presenteeism and perceived impact of presenteeism on illness and independent variables

Independent variable	Mean	SD	Range	Performance during presenteeism	Perceived impact of presenteeism on illness
Individual factors					
Age	38.44	12.94	20-67	.24***	.05
Gender	1.72	.45	1-2	-.03	-.02
Grade	1.23	.42	1-2	.17**	.06
Health and illness-related factors					
Overall health	3.34	.85	1-5	.03	.14*
Illness perceptions	5.42	1.76	0-10	-.19**	-.16**
Cause of illness	1.25	.43	1-2	-.07	.14*
Attitudinal and organisational factors					
Work engagement	4.00	0.93	0-6	.28***	.17**
Emotional exhaustion	3.29	1.30	1-6	-.13*	-.12**
Work demands	2.92	0.51	1-5	-.13*	-.06
Peer support	3.82	0.65	1-5	.13*	.14*
Management support	3.53	0.77	1-5	.20**	.14*
Work relationships	3.58	0.67	1-5	.13*	.08

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$   $N = 270$ ; SD, Standard deviation.

Table 2: Hierarchical multiple regression analysis summary predicting performance during presenteeism.

Variable		<i>N</i>	Model 1	Model 2	Model 3
			$\beta$	$\beta$	$\beta$
Grade	<i>Nurse</i>	209			
	<i>Charge nurse</i>	61	.07	.07	.06
Gender	<i>Male</i>	76			
	<i>Female</i>	194	.01	.05	.02
Age			.20**	.21**	.18**
Illness perceptions				-.19**	-.16**
Engagement					.18**
Manager support					.13*
$R^2$			.06	.10	.16
$\Delta R^2$			.06	.04	.06
Adj. $R^2$			.05	.08	.14

\* $p < .05$ ; \*\* $p < .01$ ;  $N = 270$

$\beta$ , standardized beta coefficient;  $N$ , number;  $R^2$ , explained variance;  $\Delta R^2$ , change in explained variance; Adj.  $R^2$  adjusted explained variance.

Table 3: Hierarchical logistic regression analysis summary predicting harmless and beneficial illness episodes during presenteeism.

Variable		<i>N</i>	Model 1	Model 2	Model 3
			OR (95% CI)	OR (95% CI)	OR (95% CI)
Grade	<i>Nurse</i>	209			
	<i>Charge nurse</i>	61	1.72 (0.81-3.65)	1.67 (0.77-3.61)	1.63 (0.74-3.57)
Gender	<i>Male</i>	76			
	<i>Female</i>	194	1.02 (0.55-1.91)	1.22 (0.63-2.36)	1.11 (0.57-2.16)
Age			1.00 (0.97-1.02)	1.00 (0.97-1.03)	1.00 (0.97-1.02)
Illness perceptions				0.80** (0.68-0.95)	0.82* (0.69-0.97)
Illness cause	<i>Organisational</i>	203			
	<i>Non-organisational</i>	67		2.00* (1.08-3.70)	2.02* (1.08-3.77)
Engagement					1.49* (1.07-2.07)
<i>Cox &amp; Snell R<sup>2</sup></i>			.01	.05	.07

\* $p < .05$ ; \*\* $p < .01$ ;  $N = 270$ ;

$N$ , number; OR, odds ratio; CI, Confidence Interval;  $R^2$ , explained variance.



Figure 1: Proposed model of the correlates of two consequences of presenteeism: performance loss and impact on illness

