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Original article

Are nurse presenteeism and patient safety culture associated: a cross-sectional study

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Working as a nurse involves great dedication and sacrifice: working night shifts, working overtime, and coming to work sick. The last is also known as presenteeism. Research has shown that poor nurse performance can affect both caregiver's and patient's safety. The aim of this cross-sectional study was to investigate whether nurse presenteeism affected patient safety culture and to look deeper into the characteristics of nurse presenteeism and patient safety culture in Croatia. The study was conducted in one general hospital in Croatia over April and May 2012 and specifically targeted medical nurses as one of the largest groups of healthcare professionals. They were asked to fill two questionnaires: the six-item Stanford Presenteeism Scale (SPS-6) and the Hospital Survey on Patient Safety Culture (HSOPSC). We found no association between presenteeism and patient safety culture. Overall positive perception of safety was our sample's strength, but other dimensions were positively rated by less than 65 % of participants. The lowest positive response concerned "nonpunitive response to error", which is consistent with previous studies. Presenteeist nurses did not differ in their characteristics from nurses without presenteeism (gender, age, years of experience, working hours, contact with patients and patient safety grades). Our future research will have to include a broader healthcare population for us to be able to identify weak spots and suggest improvements toward high-quality and cost-effective health care.

KEY WORDS: *Hospital Survey on Patient Safety Culture; occupational health; sickness; Stanford Presenteeism Scale*

Working as a nurse involves great dedication and sacrifice: working night shifts, working overtime, and coming to work sick. The last is also known as presenteeism. Presenteeism implies limited job performance due to a health problem (1-4). Research has shown that in occupations such as nursing, poor performance at work can have serious consequences for patient safety (5-7). Patient safety culture (PSC) is a set of individual and group values, attitudes, perceptions, competencies, and behavioural patterns towards health and safety (8). The World Health Organization (WHO) has described PSC in five points: 1) all healthcare workers accept responsibility for the safety of themselves, their co-workers, patients, and visitors; 2) patient safety is a priority above financial and operational goals; 3) identification, communication, and resolution of safety issues are encouraged and rewarded; 4) learning from accidents without people being blamed; 5) appropriate resources, structure, and accountability are provided to maintain effective safety systems (9). We can say that PSC is actually a prerogative for patient safety. Studies have shown that

up to 16.6 % of patients in acute care hospitals experience one or more adverse events (10-17) that are harmful or potentially harmful such as incorrect or late diagnosis, prescribing and medication, loss of medical documentation during patient's transfer, errors in postoperative treatment, errors in the application of medical devices (such as needlestick injuries) (18). When adverse events do not cause death or permanent damage to health, they lead to extended stays at the hospital and higher cost of treatment (19, 20).

There are 30,000 trained nurses in Croatia, 7,000 of whom hold a diploma degree. Most work in public health care.

Previous research has shown that healthcare workers are at increased risk of working sick and that teachers and nurses have the highest rates of presenteeism related to chronic diseases (21-23). Letvak et al. (6) showed that nurse presenteeism was associated with an increase in medication errors and patient falls, as well as with poorer self-reported quality of care. A systematic review by Gartner et al. (7) showed that chronic mental diseases, which are often a cause of presenteeism, were negatively associated with patient safety.

However, little is known about presenteeism among nurses in Croatia, hospital nurses in particular. The aim of our study was to get a glimpse into presenteeism rates among Croatian hospital nurses and see if their presenteeism affects patient safety.

PARTICIPANTS AND METHODS

This cross-sectional study included 148 nurses (of 194 invited) from the general hospital in Požega, Croatia. The hospital was selected based on a convenience sample of registered nurses. As the study was conducted in April and May 2012 while the first investigator attended postgraduate studies at the Zagreb University School of Medicine, we obtained an approval from the School's Ethics Committee as well as from the hospital's review board. All participants signed informed consents.

Survey and data collection

In this study we used two questionnaires: the six-item Stanford Presenteeism Scale (SPS-6) and the Hospital Survey on Patient Safety Culture (HSOPC). Both were translated into Croatian by one translator for each questionnaire and then back-translated into English by an independent translator for each questionnaire, who was blinded to the original questionnaire.

The SPS-6 questionnaire consists of six items through which the nurses were asked to evaluate their performance in the face of a health problem (33) using a Likert scale from 1 to 5, where 1 corresponds to strong disagreement and 5 to strong agreement with the statement. Scores for items 1, 3, and 4 are then reversed, so that score 1 equals 5, 2 equals 4, and so on. The sum of all scores can range from 6 to 30. Higher scores indicate better performance at work (24). For statistical analysis however, we needed a clear cut-off score, to divide respondents into groups whose performance was affected by presenteeism and those whose performance was not affected. Accordingly, we set cut-off score for presenteeism in the lower quartile, which was 18. Furthermore, in a personal communication, the main author of SPS-6 also suggested 18 as a cut-off score (25).

The second, HSOPSC, questionnaire is a self-reporting tool used worldwide for assessing safety culture in hospitals (8). It has shown moderate-to-strong validity and reliability (26). The results of psychometric analyses for the Croatian version of HSOPSC have been presented and discussed elsewhere (27). Our translation of the US questionnaire consists of 42 items grouped in 12 dimensions and two single-item measures. Eight dimensions measure PSC at unit level, two at hospital level, and two are outcome measures. For three of the 12 dimensions frequency is reported on a five-point scale from "never" to "always", whereas for the remaining nine dimensions agreement with the statement is reported on a five-point Likert scale from "strongly disagree" to "strongly agree". Safety grade is a single-item evaluation of patient safety in the nurse's unit and is scored on a scale from A to F, where higher score indicates higher patient safety level. The second single item measures the frequency of adverse event reports filed by the respondents over the past 12 months, and is scored as follows: no adverse event reports - 0 points; 1 to 2 reports - 1 point; 3 to 5 reports - 2 points; 6 to 10 reports - 3 points, 11 to 20 reports - 4 points, and 21 or more reports - 5 points.

The questionnaires were distributed to the nurses at weekly educational meetings and the responses were anonymous.

Statistical analysis

For all analyses, statistical significance was set at the *p* value of <0.05. Normality of distribution was tested using the Kolmogorov-Smirnov normality test. Descriptive analysis included participants' age, SPS-6 score, years of working experience, the number of working hours, direct contact with the patients, and the number of reported adverse events. Binary logistic regression was used to establish whether presenteeism was associated with patient safety culture. The results were adjusted for age, sex, department, years of working experience, number of working hours a week and direct contact with patients. ANOVA was used to compare SPS-6 scores across departments. Fisher's exact test was used to compare general characteristics between the participants above and below the cut-off score. Analysis was performed using the SAS version 9.1.3 (SAS Institute Inc., SAS Campus Drive, Cary, NC, USA), and data were processed using the Microsoft Excel Data Entry and Reporting Tool (Microsoft Corporation, Mountain View, CA, USA).

RESULTS AND DISCUSSION

Of 194 distributed questionnaires 148 were completed and analysed. Age distribution was not normal [Kolmogorov-Smirnov test, D(139)=0.178, $p<0.001$] and its median was 45±9.24 years (range: 22-59 years). SPS-6 total scores were normally distributed [D(150)=0.094, $p=0.58$; Kolmogorov-Smirnov test] with the mean of 21.3±4.58 and range between 7 and 30. Across hospital departments, mean SPS-6 scores were all above the cut-off score of 18, suggesting that presenteeism was not department-specific [Table 1; differences not statistically significant F(6,143)=1.77, $p=0.109$, ANOVA].

Table 2 shows that the participants divided along the SPS-6 cut-off score did not differ in gender, age, years of experience, working hours, or contact with patients ($p<0.05$).

Binary logistic regression in nurses with SPS-6 score 18 and lower showed no association with patient safety culture [chi-square(11)=8.93, $p=0.628$]. Nurses having the SPS-6 score below the cut-off did not significantly differ in patient safety grades from the nurses scoring 19 and above [chi-square(3)=1.64, $p=0.66$] (Figure 1).

Even though the overall positive perception of "in-hospital patient transfer" and safety were our sample's strength, other dimensions had positive responses below 65 %. The lowest positive response rate concerned "nonpunitive response to error", which is consistent with other studies (Figure 2) (28, 29). This may be due to the perception that errors shall be punished (so called cultural blame), as lower error rates are seen in units with less positive climate (29, 30). The same goes for the dimension "feedback and communication about error" and "frequency of adverse reporting" (28, 29). The questionnaire also confirmed the perception that hospitals in Croatia are understaffed with nurses. This perception coincides with the public perception, as hospital understaffing with healthcare personnel, nurses and physicians in particular, has been a burning issue in the country for at least 20 years. Our findings on hospital management support for patient safety indirectly corroborate earlier studies with medical nurses, in which poor work organisation had been recognised as stressful and therefore a predictor of low performance at work (31, 32).

Limitations of this study and the questionnaires

This study had several limitations. We are aware that the convenient sample and the relatively small number of participating nurses may have biased the results so that they can not be generalised. However, we feel that this convenience sample can represent an average hospital in Croatia. Our results may be biased

Table 1 *Mean SPS-6 scores obtained across hospital departments*

	Departments						
	Surgery	**Non-surgery**	**Paediatrics**	**Obstetrics**	**Psychiatry**	**Anaesthesiology**	**ICU**
Respondents	43	48	16	12	7	7	15
Mean SPS-6 score	21.42	21.04	23	18.62	22.86	18.43	22.53
(±SD)	(4.76)	(4.41)	(3.31)	(4.81)	(5.05)	(2.55)	(4.32)

Non-surgical departments included internal medicine and neurology

Table 2 *General characteristics of the participants with SPS-6 score 18 or lower and higher than 18*

	SPS-6 SCORE	
	>18	**≤18**
Men	13	5
Women	97	33
Total (N)	110	38
Median age	45	47
Years of working experience		
1 to 5 years	11	4
6 to 10 years	16	3
11 to 15 years	19	7
16 to 20 years	17	5
21 years or more	47	15
Total (N, %)	110 (74.3 %)	38 (25.7 %)
Number of working hours		
Less than 20 hours per week	2	0
20 to 39 hours per week	4	5
40 to 59 hours per week	100	32
60 to 79 hours per week	2	1
80 to 99 hours per week	1	0
100 hours per week or more	1	0
Total (N, %)	110 (74.3 %)	38 (25.7 %)
Direct interaction or contact with patients		
Yes	4	0
No	106	38
Total (N, %)	110 (74.3 %)	38 (25.7 %)

by the small number of presenteeist nurses. We chose the four-week period in the spring because it is usually not the time when working population takes a vacation but save it for the holiday season or the summer. We expected our population to be well in their working routine and perhaps experiencing their acute or chronic health problems. We also expected that the four-week frame would suffice to recruit enough participants who had experienced presenteeism and still be able to recall these experiences (24). It is however true that if we asked them to refer to a longer time frame, responses may have been different, but this would be departing from SPS-6.

The authors of the SPS-6 questionnaire acknowledge that work experiences in the past month may be affected by many environmental as well as personal factors and may change from time to time (24). Due to these factors we may not have recruited all respondents who have experienced presenteeism over the last month.

Our research was anonymous to make participants as comfortable with responding honestly as possible. However, it is possible that some of our participants were not fully honest and that some nurses who had experienced presenteeism in the previous month did not wish to respond because they did not feel comfortable with telling the truth. Another limitation is that answering to HSOPSC may be tiring, and respondents may lose interest and answer questions offhandedly (33).

For this reason we decided that another questionnaire which examines health problems, along with SPS-6 questionnaire would be too time-consuming and negatively affect the response rate. However, our future research should go into that direction. Another reason why we opted not to investigate specific health issues which had led to presenteeism is that research done so far has already provided a good insight on this subject in the field of nursing (4, 21-23, 34-37).

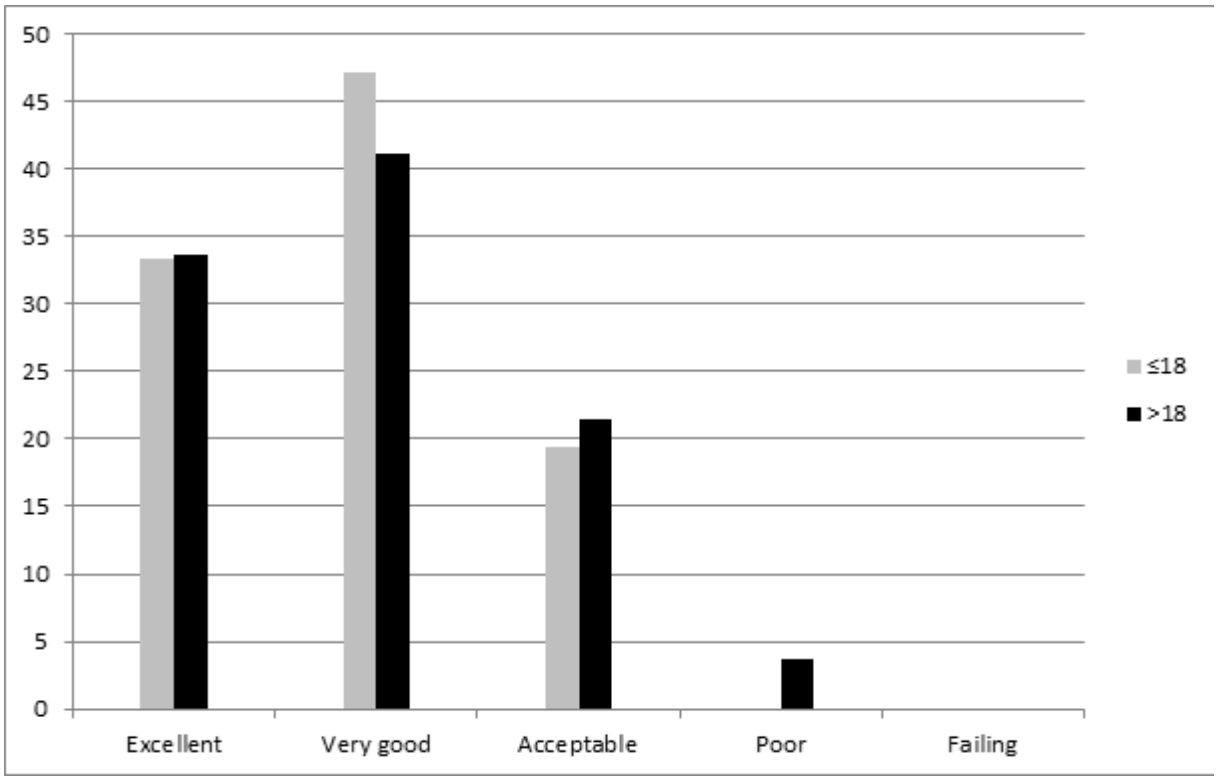

Figure 1 *Distribution of patient safety grades between presenteeists (SPS-6 score ≤18) and non-presenteeists (SPS-6 score >18)*

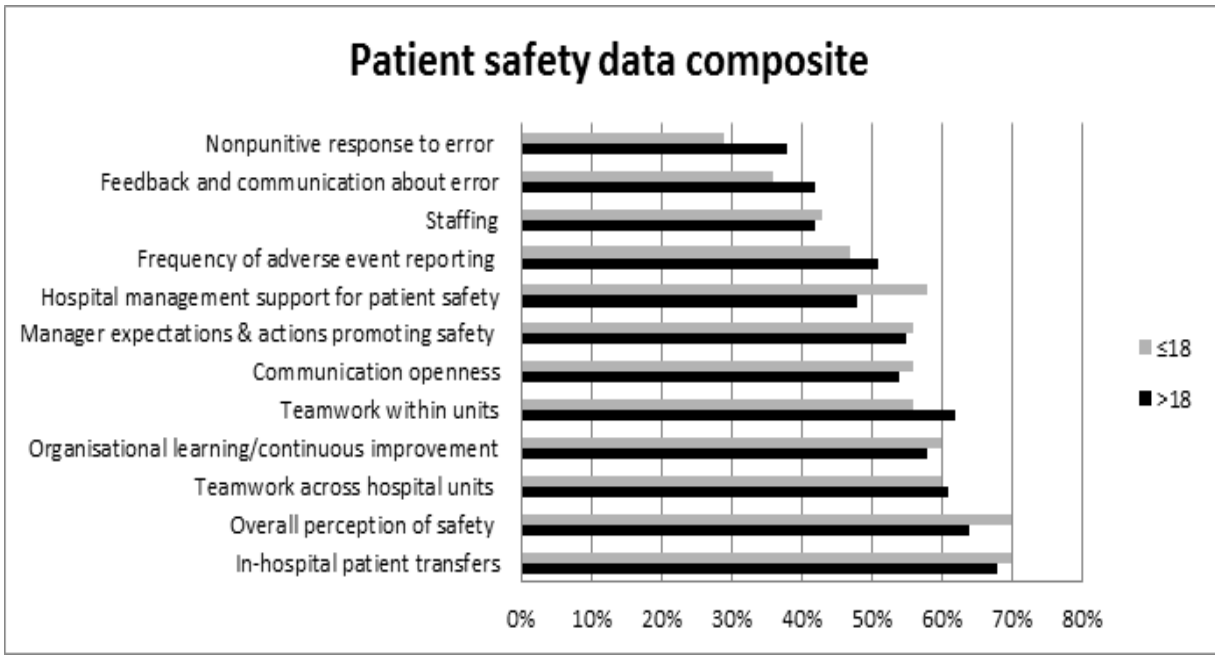

Figure 2 *Patient safety culture rating by presenteeists (SPS-6 score ≤18) and non-presenteists (SPS-6 score >18)*

We also acknowledge that HSOPSC measures patient safety culture of the department or the hospital and that it may not relate to presenteeism of individual nurse, whereas SPS-6 is an individual measure. To overcome this limitation we reported our results at the department level.

Tools employed in this research were used "as is", i.e. in their original format to screen the target population, in an attempt to identify weak spots, but have not succeeded in it.

Our future research will therefore have to include a broader healthcare population for us to be able to identify the weak spots and suggest improvements toward high-quality and cost-effective health care.

Conflict of interest

None to declare.

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Sažetak

Presječno ispitivanje povezanosti prezentizma i kulture bolesničke sigurnosti u medicinskih sestara

Zanimanje medicinske sestre uključuje veliku predanost i požrtvovnost: medicinske sestre rade noćne smjene, rade prekovremeno i dolaze na posao i kada su bolesne. Naziv za ovu zadnju pojavu je prezentizam. Neka su istraživanja pokazala da smanjena radna sposobnost medicinskih sestara zbog bolesti može ugroziti sigurnost pružatelja zdravstvene usluge i bolesnika. Cilj ovog presječnog istraživanja bio je ispitati obilježja prezentizma i kulture bolesničke sigurnosti u medicinskih sestara u Hrvatskoj te utječe li njihov prezentizam na kulturu bolesničke sigurnosti. Istraživanje je provedeno u jednoj općoj bolnici u Hrvatskoj tijekom travnja i svibnja 2012., i bilo je posebno ciljano prema medicinskim sestrama s obzirom na to da čine jednu od najvećih skupina zdravstvenih djelatnika. Ispitanici su zamoljeni da ispune dva upitnika: Stanfordsku ljestvicu prezentizma (SPS-6) i Upitnik o kulturi bolesničke sigurnosti u bolnici (HSOPSC). Nije nađena povezanost između prezentizma i kulture bolesničke sigurnosti. Najveći broj pozitivnih odgovora imala je dimenzija Opća percepcija bolesničke sigurnosti; ostale dimenzije imale su pozitivne odgovore ispod 65 %. Najmanji broj pozitivnih ocjena imala je dimenzija Nekažnjavajući pristup neželjenom događaju, što je u skladu s prethodnim istraživanjima. U pogledu spola, dobi, godina iskustva, radnih sati, kontakata s bolesnicima i njihove sigurnosti, medicinske sestre s prezentizmom nisu se nimalo razlikovale od medicinskih sestara bez prezentizma.

KLJUČNE RIJEČI: *Upitnik o kulturi bolesničke sigurnosti u bolnici; medicina rada; bolest; Stanfordska ljestvica prezentizma*

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